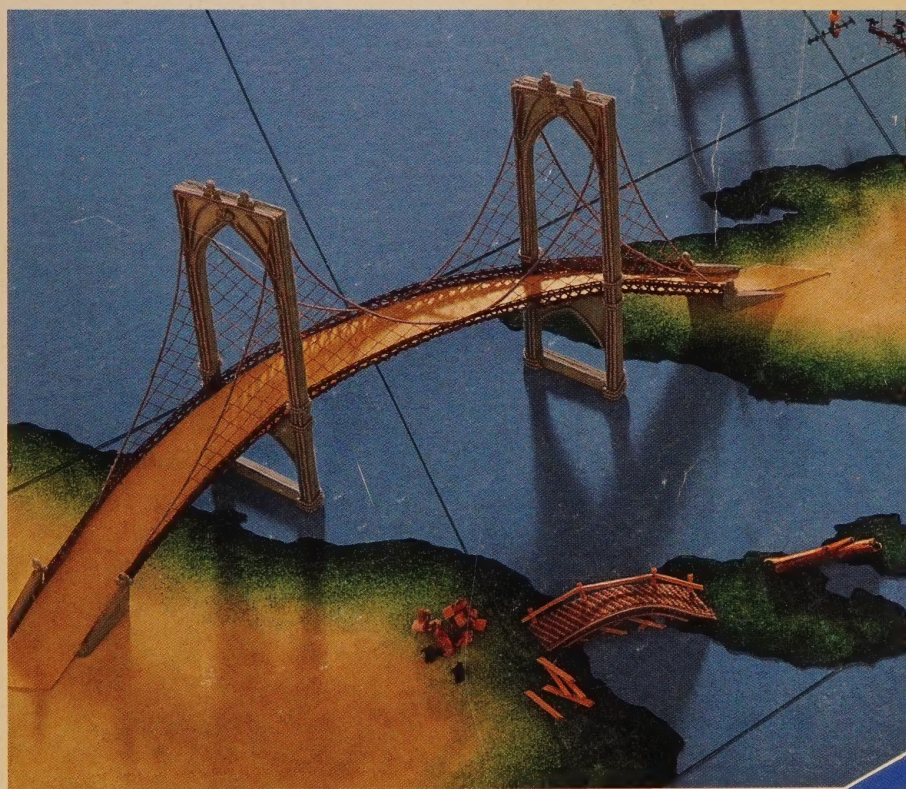


RADIO DATABASE INTERNATIONAL

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RADIO DATABASE INTERNATIONAL

**1987
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Inside This Edition...

Imagine a day when you'll be able to turn on your radio and out of the speaker will come reports direct from the news fronts of the world. "No mercy to the traitors!" screams the Leader. "Infidels will die!" cry the throngs. Switch channels and you're suddenly at a track and field event in Moscow, then a concert from the Aldeburgh Festival, then a news studio in Tokyo. Another channel up, you find a breaking report on the latest air disaster near Madrid.

While imagination always has played a major part in radio listening, there's no need to imagine world radio. Now it's as close as the controls on your set and nearly as easy to hear as your local AM station.

Every day, hundreds of stations weave a tapestry of news, information and entertainment programs from the four corners of the globe, occupying more channels than all of cable and satellite TV combined. And, oh, the music! Music of every variety, music from every people, music from every land, music for every heart.

RADIO DATABASE INTERNATIONAL gives you everything you need to know about the riches of world radio in a straightforward, easy-to-access guide prepared by the foremost authorities in the field. Included are...

- Complete coverage of world radio from the tiniest station in Nepal to the largest broadcasters of Europe.
- No-nonsense graphics that let you see clearly which stations you can hear at what time.
- Major stations listed alphabetically by country with at-a-glance schedules.
- World's first published summary of international broadcasting activity.
- Buyer's Guide to portable and tabletop radios: The definitive consumer's guide, complete with prices and comparative ratings.
- Over a dozen articles designed to help you get the most enjoyment out of your listening moments.

Your copy of **RADIO DATABASE INTERNATIONAL** provides you, day after day, with a solid wealth of tools to master the exciting world of international radio. For more details, please see the table of contents on pages 18-19.

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TEN-TEC, America's premier producer of high quality amateur radio equipment, now brings the ultimate in design to short wave listening.

With continuous frequency coverage from 100 kHz to 30 MHz the RX-325 receives short wave, medium wave, and long wave frequencies, and detects AM, SSB, and CW signals.

The latest advances in low-noise circuitry, quality ceramic filters, phase-locked loop technology and microprocessor controls insure high sensitivity and freedom from adjacent channel interference. The RF stage employs a low noise bi-polar amplifier for excellent sensitivity and a diode quad first mixer for improved dynamic range.

Although this new receiver is highly sophisticated, all controls are user-friendly. Favorite frequencies, such as BBC, VOA, WWV plus local AM stations, are easily stored in a 25 memory bank for recall at the touch of a button. Memories not only store the frequencies, but the modes and the tuning rates. The tuning knob allows you to change tuning speed automatically—in 100 Hz, 500 Hz, 1kHz or 5kHz steps.

The TEN-TEC RX-325 combines ultimate performance and ease of operation for a lifetime of listening pleasure.

Consider these features. We think you'll agree the RX-325 incorporates every worthwhile feature for maximum short wave listening pleasure.

- Keyboard or tuning knob frequency entry.
- 25 high capacity memories.
- Mode switches select AM, LSB (cw), or USB (cw).
- Blue vacuum fluorescent display.
- "S" Meter with SINPO S-scale.
- Built-in quartz digital clock with timer.
- Communications type noise blanker.

- RF attenuator.
 - Programmable band scan and memory scan.
 - Two built-in ceramic i-f filters.
 - Hi and Lo impedance antenna terminals.
 - Switchable AGC, built-in speaker.
- Audio output is 2 watts at 10% distortion.
Striking high-tech appearance finished in black.
Durable, high quality epoxy-glass circuit boards.
Dimensions (HWD) 3¼" x 9½" x 7". Weight 5 lbs. 5 oz.
115 VAC adapter included, also 13.8 VDC capability.

Introductory factory price \$549.

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SEVIERVILLE, TENNESSEE 37862

I'M UPSTAIRS, DEAR, TUNING IN THE WORLD

by
Arnold Hartley



Arnold Hartley has been active in radio since 1930, first as a writer and producer, then from the late Forties as owner of a number of successful broadcast properties. One of these — WOV, now WADO, in New York — was the first independent US station to have its own world radio listening post.

Arnold, President of Key Broadcast Management, Inc., currently serves as promotional consultant for independent stations. He is also writing a book on the development of foreign-language broadcasting in the United States, as well as preparing his personal memoirs for the Broadcast Pioneers Archive, Washington DC.

I've been listening to international broadcasts to these many, many years — in fact, from about the time the Third Reich began attracting the nervous attention of the world with its ominous "Germany Calling" broadcasts. That's how long ago it was. But despite the endless fascination I've found in tuning about the world, I've had little success until recently in persuading others to sample the wonders of the medium.

Now change is in the air, thanks to the myriad advances brought about by high technology. I suspect that before long even my wife will be able to tell visitors, "He's upstairs listening to his radio," without that customary overtone of annoyance.

The biggest improvements are technical... but, paradoxically, with the result that listening has been made easier. In the past, even the most willing converts were bewildered by the difficulty in finding the channels they were looking for. Now it's as simple as punching up the numbers you want as you would on a calculator or a Touch-tone telephone. The age of digital

radio is here and world broadcasting has taken it to heart.

Suppose, for example, you are curious to know what the Israelis are saying about the latest disaster in Lebanon, and it's 3:00 in the afternoon. Press the buttons to give you 9435 kHz on the screen of your receiver and there it is. If you miss that newscast, there will be others in English a little later on and throughout the evening.

That's also true with all the other major broadcasts you'll find on the international airwaves, whether from the BBC or Radio Moscow or the Deutsche Welle or the Netherlands, or Australia, Canada, or Tahiti. They and more than a hundred others have schedules and faithfully fulfill them. All you need is RADIO DATABASE INTERNATIONAL to tell you when and where to tune.

Another improvement is in the reception quality of modern receivers. Unless you have ambitions to pick up really weak and noisy signals just for the sport of it, you no longer need to string up an outside antenna of any kind. The telescoping antenna that comes with your radio is sufficient for everyone but the most dedicated aficionado.

So much for your radio — small in size, easy to carry around, simple to tune and — yes — not all that expensive. Now what?

To begin with, you must understand that you are entering a world of such fascinating variety that you cannot easily imagine it. There are more channels of entertainment and information via world radio than on all of cable and satellite TV combined. On shortwave, the air is filled with all the languages of civilized humanity and some others as well. And with the languages go the music and the verbal rites and literature and poetry.

Understand also that nearly all the major nations of the world take time each day to speak

Continued on page 22

25-1000MHz Plus!

IC-R7000



ICOM's commercial quality scanning receiver... Top quality at a gem of a price.

ICOM introduces the IC-R7000 advanced technology 25-2000MHz* continuous coverage communications receiver. With 99 owner programmable memories, the IC-R7000 covers low band, aircraft, marine, business, FM broadcast, amateur radio, emergency services, government and television bands.

Keyboard Entry. For simplified operation and quick tuning, the IC-R7000 features direct keyboard entry. Precise frequencies can be selected by pushing the digit keys in sequence of the frequency or by turning the main tuning knob.

99 Memories. The IC-R7000 has 99 memories available to store your favorite frequencies, including the operating mode. All memories may be called up by simply pressing the Memory switch, then rotating the memory channel knob, or by direct keyboard entry.

Scanning. A sophisticated scanning system provides instant access to most used frequencies. By depressing the Auto-M switch, the IC-R7000 automatically memorizes frequencies in use while the unit is in the scan mode. This allows you to recall frequencies that were in use.

Other Outstanding Features:

- Optional voice synthesizer

- FM wide/FM narrow/AM/upper and lower SSB modes
- Six tuning speeds: 0.1, 1.0, 5, 10, 12.5 or 25KHz
- Dual color fluorescent display with memory channel readout and dimmer switch
- Compact Size: 4 3/8"H x 11 1/4"W x 10 7/8"D
- Dial lock, noise blanker, combined S-meter and center meter
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* Specifications guaranteed from 25-1000MHz and 1260-1300MHz. No coverage from 1000-1025MHz. No additional module required for coverage to approximately 2.0GHz.

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ICOM HF Receiver

IC-R71A



The World Class World Receiver

ICOM introduces the IC-R71A 100KHz to 30MHz superior-grade general coverage HF receiver with innovative features including keyboard frequency entry and wireless remote control (optional).

This easy-to-use and versatile receiver is ideal for anyone wanting to listen in to world-wide communications.

With 32 programmable memory channels, SSB/AM/RTTY/CW/FM (opt.), dual VFO's, scanning, selectable AGC and noise blanker, the IC-R71A's versatility is unmatched by any other commercial grade unit in its price range.

Superior Receiver Performance. Passband tuning, wide dynamic range (100dB) a deep IF notch filter, adjustable AGC (Automatic Gain Control) and noise blanker provide easy-to-adjust clear reception even in the presence of strong interference or high noise levels. A preamplifier allows improved reception of weak signals.

32 Tunable Memories. Thirty-two tunable memories, more than any other general coverage receiver on the market, offer instant recall of your favorite frequencies. Each memory stores frequency, VFO and operating mode, and is backed by an internal lithium memory battery.

Keyboard Entry. ICOM introduces a unique feature to short-wave receivers...direct keyboard entry for simplified operation. Precise frequencies can be easily selected by pushing the digit keys in sequence of frequency. The frequency will be automatically entered without changing the main tuning control.

Options. FM, RC-11 wireless remote controller, synthesized voice frequency readout, IC-CK70 DC adapter for 12 volt operation, MB-12 mobile mounting bracket, two CW filters, FL32-500Hz and FL63-250Hz, and high-grade 455KHz crystal filter, FL44A.

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RADIO BEIJING: 40 YEARS OF OPENING CHINA'S DOOR

by
Larry Miller

This is XNCR, New China's Broadcasting Station, North Shensi. Today marks the premier broadcast of daily English language newscasts presented by the New China News Agency. We plan to bring to our radio audience the march of China — one fifth of all humanity — which profoundly affects the future course of world events.

— Radio Beijing's Inaugural Broadcast,
September 11, 1947

The year was 1940. Manchuria, the coastal regions, the rich Yangtze River valley and the north of China were all under Japanese control. By World War II, the Chinese, a partner of the Western Allies in their struggle against Germany, Italy and Japan, were a nation economically prostrate and politically divided.

Even during the Occupation, however, the Nationalist government chose to devote much of its efforts to fighting the Communist forces which, by 1941, had taken over much of the Yangtze River valley. As the People's Liberation Army continued its march south through China, so did a small clandestine radio station called XNCR.

Broadcasting over antiquated equipment from caves along the Army's route, it signed on for the first time with an English transmission on September 11, 1947. The announcer for that first broadcast

was a pig-tailed young woman named Wei Lin. "The studio was in a doorless cave with no proper equipment," says Ms. Wei, "and only a kerosene lantern for lighting. Whenever we started broadcasting, we had to hang up a coarse felt blanket to keep out the bleating of nearby sheep". There were no tape recorders then — the only music they could use was a phonograph recording of the Triumphal March from the opera *Aida*. Other songs were simply sung into the microphone.

The station bounced around the countryside, following the army from place to place, until settling in the capital city, Peiping — now Beijing — in 1949.

"We were very busy and our lives were hard," recounts the veteran broadcaster, "but we were all in high spirits. I will never forget those days...". Neither will anyone else who tuned to those spartan programs on 7500 kHz during the heady days of revolutionary China.

Forty years after those first broadcasts, Radio Beijing has grown from tiny clandestine status to one of the largest, most established world radio broadcasters on the air.

Located on the second floor of the Broadcasting Building, some six kilometers west of Tian'anmen Square, the center of the nation's capital, is Radio Beijing's English Service. Three shifts of editors and announcers work around the clock to put



Radio Beijing English Service Staff. From left to right: Zhang Jian-xin, Wei Lin, Yuan Fang, Li Dan, Xiao Yong, Simo, Deng Jian and Tong.



Tian'anmen Square in the heart of Beijing

together 17 hours each day of English programs for audiences around the world.

And just as Radio Beijing has taken a great leap forward since its cave-dwelling days, so has the programming. During the Cultural Revolution in the early 1970s, the station devoted entire programs to the recitation of the works of Chairman Mao Zedong.

Today, as the People's Republic of China actively pursues the policy of *duiwai kaifang*, or "open door", Radio Beijing concentrates on programs that help the listener understand this ancient culture. The station presents features on culture, history and people of China, among which are "China in Construction" and "Folk Tales and Across the Land". All broadcasts begin with news and commentary on both international and domestic affairs.

Unfortunately for listeners in Eastern North America, Radio Beijing's signal does not provide the best reception. The station has tried to arrange relays of its broadcasts to improve signal quality. The first of these was undertaken in cooperation with the Albanians from 1968-78. More recently, Radio Beijing fell victim to a change in government in France when, in the fall of 1976, conservative Prime Minister Jacques Chirac abruptly cancelled a briefly implemented transmitter swap between his government and that of the People's Republic of China.

But what the station lacks in reliable reception is more than made up for by the friendliness and helpfulness of the staff. Write a letter to Radio Beijing and you might well get a reply from staffer Chen Yu, along with a package of literature and small souvenirs. Occasionally, the station even invites listeners to visit China as a guest of Radio Beijing.

Few countries offer such a broad range of world radio programming as does China. From a myriad of local and national domestic stations to the vast output of Radio Beijing, the world radio air-

waves crackle with the rich diversity of Chinese broadcasts. With your world radio, you can share with the Chinese their feelings, their songs, their way of life.

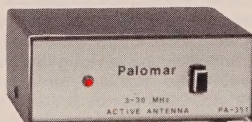
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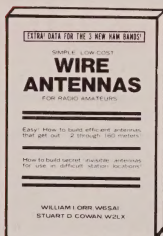
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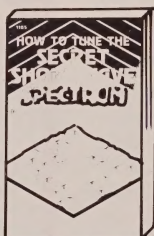
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ICOM R-7000



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25 KHz-2000 MHz Commercial**

ICOM introduces the R-7000 25KHz to 100MHz superior-grade extended coverage VHF-UHF commercial receiver with innovative features including keyboard frequency entry. This easy-to-use and versatile receiver is ideal for anyone wanting to listen in to the full spectrum of worldwide communications. With 99 programmable memory channels, SSB/AM/CW/FM (wide and narrow) the R-7000's versatility and coverage is unmatched by any other commercial grade unit in its price range.

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\$19⁹⁵ 40th YEAR
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• Country Listings
• Time Schedules • Reviews

Listen to the world...hear the voices of people making history...eavesdrop on local programs from around the globe...discover music and cultures you never knew existed...gain a new perspective on international events...the **WORLD RADIO TV HANDBOOK (WRTVH)** is your guide to an exciting new world—the world of the International Listener! This unique handbook is your personal 24-hour passport to the world's broadcasters and their services listed by country. A special hour-by-hour guide to broadcasts in English directed to your area. Essential station information including frequencies, transmitter powers, operating times, languages, addresses, etc. Listing of stations in frequency order to help you identify them more easily. Maps of principal transmitter sites worldwide: Names and addresses of international radio listeners' clubs. Information on reception conditions, Time Signal Stations and other specialized subjects. Widely acclaimed annual test reports on receivers for the international listener.

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- **Built-in ferrite bar antenna** for LW and MW reception
- **Telescopic antenna** for FM and SW reception

SPECIFICATIONS

Frequency Range: AM 150-29,999 kHz; FM 76-108 MHz; Air 116-136 MHz

Antenna System: LW, MW Built-in Ferrite Bar Antenna, FM, Air SW Telescopic Antenna

Inputs: DC in 4.5V, External antenna input (minijack x 2)

Outputs: Earphone (minijack), Record output (minijack)

Speaker: 4-inch dynamic

Power Requirements: Batteries "D" x 3 (4.5V) (optional), "AA" x 2 (3V) (optional) for programmable clock/timer, AC 120 Volts, 60 Hz with AC Adaptor (supplied), DC 12 Volts with DCC-127A Car Battery Cord (optional)

Dimensions: 6 1/4" H x 11 1/8" W x 2 1/8" D

Weight: 3 lbs. 12 oz (with batteries inserted)

Color: Black

Supplied Accessories: AC Adaptor, Earphone, Shoulder Strap, Long Wire External Antenna, External Antenna Connector (x 2), Short Wave Handbook

Optional Accessories: DCC-127A Car Battery Cord, AN-1 Active Antenna



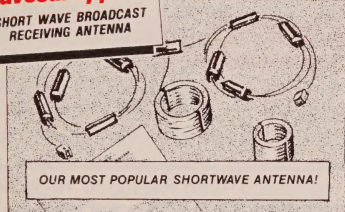
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- **Full AM band coverage** (LW, MW, SW, USB, LSB) plus **FM and Air Band reception**
- **Band select** function for quick access to SW broadcast bands
- **Direct Access™ tuning** enables you to "key-in" station numbers directly
- **Rotary tuning knob** for smooth, convenient manual tuning up and down the band
- **32 station memory presets** for immediate recall at the touch of a button
- **Memory Scan tuning** gives a brief sampling of each preset

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KEEPING TABS ON THE BBC'S 100 MILLION LISTENERS

by

Graham L. Mytton, BBC

For most of its 54 years, the BBC External Service — the United Kingdom's official world radio organization — has maintained an audience research department to measure and analyze its audience in different parts of the world, as well as to seek the opinion of listeners to the BBC's various world radio programs.

The BBC's International Broadcasting and Audience Research Department is the largest of its kind in the world. Surveys are carried out in a number of countries each year on behalf of the BBC by independent market or opinion research companies to obtain information about the size and characteristics of the audience for the BBC, as well as other broadcasters. The surveys are based on interviews — mainly personal, but occasionally by telephone — with carefully drawn samples of adults.

BBC Heard Weekly by 100 Million Adults

Audience surveys like this have enabled the BBC to estimate its global audience at around 100 million adults listening to one or another of the BBC's thirty-seven language broadcasts at least once a week. There may be more. We believe that it is a modest claim based on the best evidence available. In any event, it points to the continuing vigor of world radio broadcasting.

Facilities for carrying out such studies vary considerably. Western Europe, for example, presents few problems. However, in some less developed areas, there may be no resident research organization, so there may be difficulties in covering the rural population. In certain other countries, it is not possible for the BBC to carry out surveys at all.

However, in spite of these difficulties, over the past ten years survey results have been available for more than eighty countries. Some of the main findings from individual surveys are given below; they are, of course, subject to the margin of error inherent in all sampling procedures.

The figures show considerable differences between countries in the amount of listening to external broadcasters. The results must be assessed against a number of other factors, such as the number of hours of transmission, availability of medium-wave AM as well as shortwave, the quality of the BBC's signals, the local radio and television alternatives, world events, the state of the country's development and the languages understood by listeners in that country.

Wide Variation Among Broadcasters in Attracting Listeners

For example, a survey was carried out in Pakistan in June and July of 1982. Interviews among a representative sampling of the adult urban population indicated that 46.8% of these people listened regularly — at least once a week — to the BBC

Urdu Service. This is equivalent to a regular adult urban audience of about 5.5 million in Pakistan. All India Radio had a somewhat larger Urdu audience (58.5%) but those for the other international broadcasters, on the other hand, were much smaller: Radio Tehran 11.1%, Radio Kabul 5.9%, Radio Moscow 2.9%, VOA 2.7%, Radio Peking 1.8% and Deutsche Welle 0.6%. The largest audience in Pakistan for English-language broadcasting was for the BBC, which was heard regularly by 4.8%, equivalent to about a quarter of a million adult listeners.

Interviews were also conducted in some of the more accessible rural areas of Punjab and Sind provinces. About a third of those respondents listened regularly to the BBC Urdu Service, whereas a somewhat higher proportion listened to All India Radio. If the rural listeners were added to the urban, it is estimated that the total audience in Pakistan for the BBC Urdu Service is of the order of 10 million adults.

In the first four months of 1981, a survey was also carried out in India among a representative sample of the urban and rural population of two northern states — Uttar Pradesh and Rajasthan — where Hindi is the main language. The survey confirmed previous evidence of a large audience for the BBC Hindi Service, with 24.2% of the sample tuning in regularly. A particularly high listening level was found to exist in Rajasthan, which is better served than Uttar Pradesh by mediumwave AM broadcasts from Masirah Island.

Based on this survey it is estimated that there are over 15 million regular listeners to the BBC Hindi Service in these two states of India alone. Further, taking into account varying reception conditions and population structures, it can be broadly estimated that the Hindi Service is heard regularly by some 35 million adults in the subcontinent as a whole. The survey also asked about six other foreign broadcasters in Hindi. Apart from the Sri Lanka Broadcasting Corporation, with 30.2% of the sample listening regularly, audiences were much smaller than for the BBC: Radio Pakistan 8.7%, Radio Moscow 3.8%, Voice of America 2.4%, Radio Peking 1.4% and Deutsche Welle 0.7%. BBC broadcasts in Urdu were regularly heard by 3.4% of the sample, equivalent to about 2,250,000 adults in the two states, and English broadcasts by 2.1%, about 1,250,000 adults.

Who Listens, and Why

But counting listeners is not the whole of audience research. Obviously, it is good to be able to know how many are listening. But we also like to know details about demographics — that is, specifics about just who the listeners are. There is too much complexity to cover much of this aspect here, as audiences vary from country to country. But some broad generalizations can be made.

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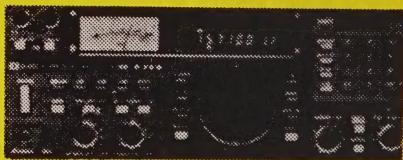
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In every case, men outnumber women. The audience is generally better educated, better housed, better off and younger than the population as a whole. But this point should not be misunderstood or exaggerated. In India, for example, although better educated and urban employed people form a disproportionately large section of the audience, peasants and illiterates are still the larger group.

In order to perform their functions as well as possible, programme makers need more information about the tastes and preferences of the audience in various parts of the world. Unfortunately, sample surveys are not often suitable for providing the kind of in-depth reaction to programming required by programme makers. This can be more readily acquired from an analysis of the substantial amount of mail received from listeners and by the use of postal questionnaire techniques. Naturally, the volume of correspondence gives no indication whatsoever of the audience size, which may fluctuate wildly in response to all kinds of stimuli both within and beyond the BBC's control.

Letters from Listeners Uniquely Helpful

Even so, letters from all parts of the world continue to be a valuable source of reaction to programme output, as well as providing extensive data on reception conditions and indicating the wide geographic spread of the audience. In 1985, the External Services received some 450,000 letters from around the world. Leading the way was the Arabic Service with 65,000, followed by the English language World Service with 54,000 and the Hindi Service with 49,000 letters. A major stimulant to letter writing in many languages is the "English by Radio" program series.

It is worth mentioning here that these English lessons on the BBC, now broadcast to all parts of the world and with commentaries provided in many languages, are very popular and attract new listeners anxious to learn or improve their English. These listeners often stay with the broadcasts to hear news and other programmes.

Postal questionnaire techniques provide an opportunity to question groups of listeners about all aspects of their BBC listening and general media usage. These questionnaires also eliminate the haphazard effects inherent in relying on listener correspondence for such information. This methodology is particularly appropriate for stimulating in-depth reaction to current programming, for testing ideas for the future, and for producing a wide range of very detailed information on listening habits, reception conditions and radio set ownership.

In 1985, over 27,000 questionnaires were returned by BBC listeners. Additionally, in 1984 there was a listening diary in the World Service magazine, *London Calling*, which prompted over 5,000 listeners to keep detailed hour by hour records of their World Service listening for a week. A similar exercise on a smaller scale was carried out with Arabic listeners.

Special Research for Measuring within Closed Societies

Some areas of the world are completely closed

to research — either by surveys on the ground or by postal questionnaires. Much of the communist world is in this category, although some indication of the size of audiences in Eastern and Central Europe is obtained by special research carried out by Radio Liberty and Radio Free Europe (RFE/RL). Most of this information on radio listening in COMECON countries is obtained from visitors to Western Europe. It is not an ideal way to do research, but provides useful information in an otherwise barren field. Occasionally, it is possible to verify parts of this research by reference to what little radio audience research occasionally becomes available from these closed countries.

There are two bright features of BBC research in recent years relating to listening in the communist countries. In 1982, a successful postal survey was carried out of listeners in Yugoslavia. China provides an even more striking example of a change in atmosphere. Before 1979, almost no letters were ever received by the BBC Chinese Service from inside the People's Republic. Only 17 were received, for example, in 1978. With the removal of restrictions, mail shot up to nearly 18,000 in 1979 and to over 29,000 in 1980. This was followed by a postal survey in 1981 during which more than 2,000 questionnaires on radio reception were completed by listeners in mainland China and sent to the BBC. Such postal research in China continues to date. More recently, market research on the streets of China has become possible, so data on radio listening in some of the main cities will soon become available.

Research Allows Decisions to be Based on Facts

Research in world radio broadcasting helps the program makers and planners avoid mistakes and false assumptions that are all too easy to make from a position physically removed from the target audience. For example, it is often assumed that in the rich industrialized countries of North America, Europe and Japan, only shortwave enthusiasts like "DXers" listen to broadcasts from other countries.

This is a fallacy.

Take Europe, for example. First of all, there are many ordinary radio listeners who know little or nothing of kilohertz or frequency spectrums who listen regularly to radio stations transmitting from other countries. In most cases nowadays, however, such listening is on mediumwave AM, as shortwave listening in Western Europe has declined. The major world radio broadcasters in Europe, including the BBC, Deutschlandfunk, Radio Luxembourg and Radio Moscow now use frequencies in the medium-wave AM band for at least some of their transmissions directed at audiences in Europe.

It might be argued that in many cases, listeners to broadcasts emanating from other countries in Europe are really only "eavesdropping" on the domestic transmissions of neighboring countries. But the aforementioned four international broadcasters each uses mediumwave AM for transmissions in languages intended for other countries. Thus, the BBC broadcasts some of its programmes in English, French and German on mediumwave AM to Western Europe. So does Radio Moscow. Deutsch-

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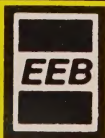
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landfunk uses no shortwave at all, but directs its programmes in various East and West European languages to its target areas in both mediumwave AM and longwave frequencies. It now has plans to build a series of FM stations to increase its audience in East Germany. This will not be the only example of international broadcasting on FM. The BBC has broadcast for many years to Greater Berlin on FM. International broadcasters know that to be completely effective, especially in Northern and Western Europe, they need to develop and sustain services in frequencies alongside the domestic radio services.

Secondly, and despite these developments, shortwave listening survives in many developed countries and is by no means confined to enthusiasts. Indeed, enthusiasts form a minority of the listenership to world radio broadcasts. For example, in 1986, a survey conducted in Greece found a regular audience to the BBC Greek Service of over 2% of the adult population. A similar survey in 1982 in Finland found 1.5% of the adult population listening regularly to the BBC Finnish Service.

Two Million Hear BBC Regularly on Shortwave in US

In the United States, where it has been assumed that no one but radio buffs listen to shortwave, a survey for the BBC in 1981-1982 found a regular audience to the BBC World Service in English of 1.3% — equivalent to approximately two million adults. New digital sets, such as are reported on in this book, make tuning to world radio on shortwave very much simpler. The wide availability of these sets may increase listening to shortwave internationally.

We often ask listeners in our surveys why they tune to the BBC. The overwhelming reason given is that they want to hear news. In totalitarian states this is easy enough to understand. In other countries which are not dictatorial or totalitarian, government control of the main radio and TV stations nonetheless means very often that the news is colored by official attitudes. People often tune to the BBC to see if they can find out more. Thus, during an international crisis, there is plenty of evidence that listeners in the country concerned increase their listening to foreign stations, especially the major ones.

But even in countries, such as the US, where the local media are under no bureaucratic or political control, many listeners explain that they listen to the BBC or other major world radio broadcasts to hear world news not provided on their own stations. Commercial radio stations in the United States broadcast very little world news, it being a minority interest spread thinly around the country. But two million listeners is a handsome minority for the BBC World Service! This figure, by the way, is *in addition* to listening to rebroadcasts of the BBC on local US stations.

In Japan, shortwave listening survives. The BBC conducted a survey there in 1983. A previous survey in 1976 found a regular adult audience of about half a million listening to the BBC Japanese Service. The 1983 survey, on the other hand, showed a slightly smaller audience at just under

400,000. In the Middle East and North Africa there has been a move in recent years away from shortwave listening. This is because the major international broadcasters in the region have developed mediumwave AM facilities in order for their Arabic Services to compete with domestic stations and, more importantly, with the successful and popular commercial stations, such as Radio Monte Carlo, broadcasting from Cyprus — which, incidentally, is interesting in that it has recently added shortwave to its established mediumwave AM operation, rather than the customary *vice versa*.

Withal, there is ample evidence that large numbers of people in the Arab World continue to listen to the shortwave transmissions of major international broadcasters, especially in those areas where some mediumwave AM transmissions cannot reach. For example, in Morocco — which is well beyond the reach of any BBC mediumwave AM transmitters — the BBC's Arabic Services were listened to regularly in 1986 by no less than one in six urban adults every week.

The Future of World Broadcasting

The 1980s will probably be looked back on as a decade in which world radio broadcasters engaged in a major rethinking of their tactics with respect to technology.

Will direct broadcasting by satellite be feasible? Already the BBC is feeding most of its relay transmitters around the world by satellite, thus improving the technical quality. With the development of cable TV/radio in the rich industrialized nations, will international sound broadcasting be made available as one service among the others so that a high quality feed, perhaps even in stereo, may be provided direct to the homes of those who want it? Can jamming, which has so adversely affected shortwave listening in Poland and the USSR be overcome? Is direct radio broadcasting by satellite technically and politically feasible prospect?

Perhaps most important of all, what will be the impact of the 1987 World Administrative Radio Conference (WARC-87)? This crucial gathering is to decide on a number of fundamental aspects of how the shortwave spectrum is to be utilized for world radio broadcasting.

Whatever happens, shortwave broadcasting is certain to survive as a major element in world radio broadcasting for the rest of this century. The VOA, BBC, Deutsche Welle and Radio Nederland have shown their confidence that this is so by recent investments in new transmitters, and there are plans for others. Too, both Radio France International and Radio Japan have undertaken ambitious programs aiming at the improvement of their standing among world radio broadcasters.

Dr. Graham L. Mytton is the Head of International Broadcasting and Audience Research with the BBC External Services. His career with the BBC began in 1964, and has included duties with the African Service and Radio 4. He has published two books, including *Listening Looking and Learning* (Lusaka, 1975) and *Mass Communications in Africa* (London, 1983).

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You can use it anywhere where space is a problem. Mount it on top of houses, buildings, balconies, mobile homes, apartments, on board ships - anywhere.

A very high dynamic range amplifier eliminates intermodulation so you'll hear only what's actually there. It can be mounted outside away from electrical noise for maximum signal and minimum noise pickup.

A 20 db attenuator and a gain control prevents overloading your receiver. You can select between 2 receivers and an auxiliary antenna.

The MFJ-1024 comes complete with a 50 foot coax cable and connector - ready to use!

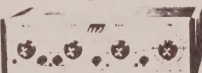
Weather-proofed electronics, thick aluminum mounting plate and a durable black amplifier casing make this the best built active antenna that you can buy.

Uses 12 VDC or 110 VAC with MFJ-1312, \$9.95.

ALL BAND RF PRESELECTOR

MFJ-1040

\$99⁹⁵

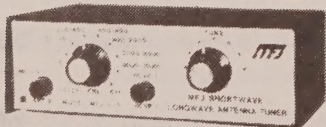


Weak barely readable signals from all over the world become strong, loud and clear with this MFJ all band preselector. You hear only what's actually there because it rejects out-of-band interference, reduce images and cross-modulation and resist overloading.

It includes all shortwave, amateur, commercial and military bands thru lower VHF, 1.8-54 MHz.

Conveniences include a handy 20 db attenuator, switches for 2 antennas, 2 receivers and parallel connected coax and phono jacks. 8x2x6 in. Uses 9-18 VDC or 110 VAC with MFJ-1312, \$9.95.

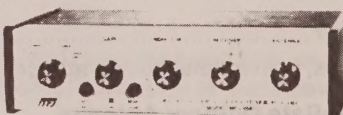
PRESELECTING SW/MW/LW TUNER



MFJ-955 \$79⁹⁵

Greatly improves reception of 10 KHz thru 30 MHz signals, espe-

RECEIVER TUNER



MFJ-959 \$89⁹⁵

MFJ-959 matches antenna to receiver for maximum signal strength. Has low noise 20 db preamp for weak stations.

Covers 1.8 to 30 MHz.

Can use 2 antennas and 2 receivers. Select tuner, tuner with preamp, tuner with 20 db attenuator, bypass. Gain control. Coax, phono jacks. Uses 9-18 VDC or 110 VAC with optional AC adapter, MFJ-1312, \$9.95. 9 x 2 x 6 inches.

MFJ-950, \$59.95. Similar to the MFJ-959, less preamp, attenuator and bypass.

cially those below 2 MHz.

Lets you peak desired signals while rejecting interference. Reduces overload, noise, cross and intermodulation. VLF signals come roaring in.

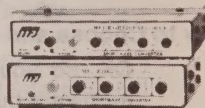
Switch between two antennas and two receivers. Bypass position connects antenna directly to receiver. 5 1/2 x 2 x 3 inches. Black, eggshell white aluminum cabinet.

SHORTWAVE

MOBILE SHORT-WAVE CONVERTERS

MFJ-308

\$99⁹⁵



MFJ-304

\$79⁹⁵

Listen to the world on the road with these low cost mobile SWL converters. Choose the MFJ-304 "World Explorer I" that covers 19, 25, 31 and 49 meter bands or the MFJ-308 "World Explorer II" that adds 13, 16, 41 and 60 meter bands for total SWL coverage.

World wide coverage brings in stations from Europe, Africa, Asia, Middle East, South Pacific plus North and South America! Just push a button to select your band and tune in stations with your car radio. Excellent sensitivity is provided by 2 dual-gate MOSFETS. MFJ-304, 5 1/4 x 1 1/4 x 4 in., MFJ-308, 6 1/4 x 1 1/4 x 5 in.

FREQUENCY MARKER



\$39⁹⁵

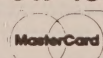
MFJ-200BX

Know where you are! Don't get lost in the SWL airwaves.

The MFJ-200BX provides strong precise frequency markers every 100, 50 or 25 KHz, well into the VHF region. Markers are gated for positive ID. Advanced circuitry suppresses unwanted markers 9 volt battery (n/lnc.) 2 1/4 x 3 1/4 x 4.

See Your Dealer or Call TOLL FREE 800-647-1800

MFJ ENTERPRISES INCORPORATED



921 Louisville Rd., Starkville, MS 39759 U.S.A. • Telex 53-4590 MFJ STKV

Indoor Tuned Active Antenna MFJ's World Grabber

Here's what the "World Radio TV Handbook" said about the MFJ-1020: *"The MFJ-1020 is a fine value in flexibility ... the MFJ-1020 performs very well, indeed."*

"World Grabber." Put this handsome unit on your operating desk and listen to the world! Its performance rivals, often exceeds reception from outside long antennas.

Unique tuned circuitry minimizes intermodulation distortion, provides additional RF selectivity and reduces noise outside the tuned band.

Amplification also permits using the MFJ-1020 as a pre-selector with an external antenna, for added versatility.

Covers 300 KHz to 30 MHz in 5 bands. Switch selects .3-.7, .7-1.6, 1.6-4, 4-11, 11-30 MHz.

Adjustable telescoping antenna. Swivels for maximum signal, minimum noise.

Full controls for tuning, band selection, gain and function (On-Off/Bypass). LED indicator. FET, bipolar circuitry. Phone jack provided for use with external antenna.

Universal power. Operates on 9 V battery (not included); any 9-18 VDC supply, or 110 VAC with optional AC adapter, MFJ-1312, \$9.95.

Convenient size. The handsome beige and walnut grain plastic and metal cabinet easily fits on your desk for it measures just 5x2x6 inches.

Travel the World with your ears. Wherever you live, city apartment or country home, MFJ-1020 will grab the SWL world for you!

**NEW
IMPROVED
WITH HIGHER GAIN!**

MFJ-1020

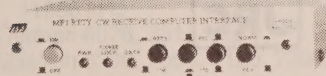
\$79⁹⁵



ACCESSORIES

**RTTY/ASCII/CW
RECEIVE ONLY SWL
COMPUTER
INTERFACE**

MFJ-1225 **\$69⁹⁵**



**FREE MFJ RTTY/ASCII/CW
Software Tape and Cable for
C-64 and VIC-20.**

**Receive commercial, military,
and amateur RTTY/ASCII/CW
using your personal computer.**

The MFJ-1225 Computer Interface plugs between your receiver & VIC-20, Apple, TRS-80C, Atari, TI-99, Commodore 64 and most other personal computers. Requires suitable software.

Copies all shifts (850, 425, 170 Hz shift and all others) and all speeds. Automatic noise limiter suppresses static crashes for better copy. 2 LED tuning indicator makes tuning fast, easy, positive. 4 1/2 x 1 1/4 x 1 1/4 in. 12-15 VDC or 110 VAC with optional adapter, MFJ-1312, \$9.95.

In addition, MFJ-1225's unique general purpose socket provides RTTY out, RTTY inverted out, CW out, CW inverted out, ground and +5 VDC for interfacing to most any personal computer with the proper software.

**DUAL TUNABLE
SSB/CW FILTER**

MFJ-752B **\$99⁹⁵**



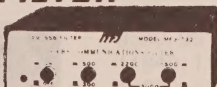
The 752B is MFJ's most versatile filter. Zero in your SWL signal and notch out interfering signals at the same time. Primary filter has tunable peak, notch, lowpass and highpass. Auxiliary filter has peak, notch. Gives constant output as bandwidth is varied. Linear frequency control.

Switch for 2 receivers. Drives speaker. 10x2x6 in. 9-18 VDC or 110 VAC with MFJ-1312, \$9.95.

DX'ers FILTER

MFJ-732

\$69⁹⁵



Uncover signals buried in the airways. Helps eliminate heterodyning and signal interference. Select lowpass and highpass cut-offs at 300, 500, 1500, 2200 and 3000 Hz for much improved copy.

Speaker, 2W amp. 9-18 VDC, 110 VAC with MFJ-1312, \$9.95.

**24 HOUR
LCD CLOCKS**

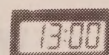
MFJ-108

\$19⁹⁵



MFJ-107

\$9⁹⁵

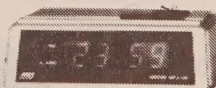


Huge 5/8 in. LCD numbers. Choose from dual clock with separate UTC and Local time display or single unit with 24 Hour display. Both mounted in a brushed aluminum frame, easy to read. Both can be operated in alternating time-date display mode. Battery included. MFJ-108, 4 1/2 x 1 x 2; MFJ-107, 2 1/4 x 1 x 2. Imported.

**24/12 HOUR CLOCK
WITH ID TIMER**

MFJ-106

\$19⁹⁵



Switch to 24 hour UTC or 12 hour format! Battery backup. ID timer alerts every 9 minutes after reset. Red .6 in. LEDs. Synchronizable to WWV. Alarm, snooze functions. PM, alarm on indicators. Silver/Black cabinet. 5x2x3 in., 110 VAC, 60 Hz. Imported.

Order from MFJ and try it — no obligation!

- If not delighted, return it within 30 days for a prompt refund (less shipping).
- One year unconditional guarantee. • Made in U.S.A. • Add \$5 each shipping/handling • Call or write for FREE Catalog. Over 100 products.

Continued from page 5

to you in English, to tell you how they view the life of man on earth and to sing and play and recite for you, bringing the best people to their microphones to get and hold your attention.

And that brings us to the subject of this book, because no matter what your listening pleasure, you've got to know where and when to tune.

In RADIO DATABASE INTERNATIONAL you'll find virtually all the information you need to let you open the shutters on this wondrous window to the world. RDI lets you know about the new generation of high-tech radios — how they perform, what they cost. It tells you also when and where to find the stations that broadcast such a rich diversity of programs: live coverage of unfolding events, concerts, world and local news, political commentary, drama, sports, and so much more.

So, even if you've never been more than fifty miles away from the family hearth, this book will give you something very special: the key to your world.

Today, I find — often in surprising ways — that more people are discovering the excitement of world radio for themselves. Take what hap-

pened one Saturday afternoon recently when I walked in on our local tailor and found him, amidst needle and thread, listening on his little Sony world-band radio to a station in West Africa. He had come upon the broadcast by pure accident. His use for world radio to that moment had lain in the soccer broadcasts from his home country. That Saturday, out of curiosity, he had tuned across the dial and discovered this West African program. He was intrigued, so I went home and got my copy of RADIO DATABASE INTERNATIONAL and lent it to him.

The next time I came in, he was full of information on the many other stations he had discovered, including a particularly powerful one that offered all sorts of music, from Arabic vocals to Paul Anka, and emanated from, of all places, Abu Dhabi.

Now, my friend the tailor has become an enthusiastic explorer of world radio. I think it was my copy of RDI that really did it. And he still has it, by the way. In view of the pleasure he's getting from it, I just don't have the heart to ask him for it. So I'll get another copy and set it down among good deeds done.

Rarely do good deeds cost so little!

WHEN ONLY THE VERY BEST IS GOOD ENOUGH KENWOOD

R-2000



Superb Communications Receiver

VC-10



VHF CONVERTER

JRC

Japan Radio Co., Ltd.

NRD 525



GLENWOOD TRADING COMPANY LTD.

278 East 1st St., North Vancouver, B.C. V7L 1B3

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These, and many other fine Ham radio products are detailed in our latest mail-order catalogue.

WORLDWIDE BROADCASTS

You can tune in world radio broadcasts in either of two ways: by country or by frequency.

This quick-access “Worldwide Broadcasts” section tells you the year-around frequencies of major world broadcasts — those of at least 50 kW power — in English, French, German, Japanese and Spanish. It’s perfect for getting right to the station you want.

Survey findings at International Broadcasting Services indicate that world radio listeners especially enjoy “traveling” around the bands...finding what they like to hear, rather than simply tuning directly to a given country. For that reason, the at-a-glance “Worldscan” section farther on in this book provides you with something special: the ability to scan up and down the over-1,100 channels of news and entertainment found within the world radio bands. This also serves to complement the “Worldwide Broadcasts” section by providing in one handy chapter a wealth of details concerning every station on each channel.

AFGHANISTAN

RADIO AFGHANISTAN

English 6085 kHz

ALBANIA

RADIO TIRANA

English 6200, 7065, 7075, 7080, 7120, 7300,
9555, 9760, 11960, 11985, 15430 kHz

French 7065, 7075, 7080, 11885, 11905, 11960,
11985 kHz

German 6076, 7310 kHz

Spanish 6200, 7065, 7120, 7300, 9750, 9790,
11985 kHz

ALGERIA

RTV ALGERIENNE

English 9509, 9640, 15160, 17745 kHz

French 9509, 9640, 15160, 17745 kHz

Spanish 9509, 9640, 15160, 17745 kHz

ANGOLA

“VOICE OF NAMIBIA”

Multilingual 7245 kHz

RADIO NACIONAL

English 7245 kHz

French 7245 kHz

Spanish 7245 kHz

ARGENTINA

RADIODIFUSION ARGENTINA-RAE

English 9690, 11710, 15345 kHz

French 6060, 11710 kHz

German 15345 kHz

Spanish 6060, 9690, 11710, 15345 kHz

Japanese 9690 kHz

RADIO NACIONAL

Spanish 6060, 11710 kHz

AUSTRALIA

AUSTRALIAN BROADCASTING CORP

English 15425 kHz

Multilingual 4835, 4910, 5025 kHz

RADIO AUSTRALIA

English 5995, 6035, 6060, 6080, 7205, 7215,
9580, 9620, 9645, 9655, 9710, 9770, 11705,
11720, 11800, 11910, 15160, 15165, 15180,
15240, 15320, 15395, 15415, 17715, 17725,
17750, 17795, 17830 kHz

French 15140, 15160, 15320, 17750 kHz

Japanese 9710, 11800 kHz

AUSTRIA

RADIO AUSTRIA INTERNATIONAL

English 5945, 6000, 6155, 7170, 9635, 9770,
11660, 11670, 11840, 11935, 12015, 12025,
15185, 15270, 15315, 15320, 15410,
15465 kHz

French 5945, 6000, 6155, 9615, 9635, 11670,
11840, 11860, 12015, 12025, 15185, 15315,
15410 kHz

German 5945, 6000, 6155, 7165, 7170, 9580,
9590, 9615, 9635, 9760, 9770, 11660, 11670,
11840, 11860, 11935, 12015, 12025, 15185,
15270, 15315, 15320, 15410, 15465 kHz

Spanish 5945, 6000, 6155, 7165, 9580, 9590,
9615, 9760, 11660, 11670, 11860, 12015,
15315 kHz

BANGLADESH

RADIO BANGLADESH

English 6240, 7505, 9855, 11555, 11645, 12030,
15525, 15585, 17653 kHz

BELGIUM

BELGISCHE RADIO TV

English 5910, 9830, 9880, 9905, 9925, 11980,
15510, 15515, 21810 kHz

German 5910 kHz
Spanish 5910, 9830, 9905, 9925, 11980 kHz
RADIO-TV BELGE FRANCAISE
French 5965, 6040, 6050, 6075, 9900, 11850,
11855, 15210, 15580, 17675, 17680, 17685,
21460 kHz
German 5965, 17680, 17685 kHz

BOTSWANA

RADIO BOTSWANA

Multilingual 3356, 4820, 5955, 5965, 7255 kHz

BRAZIL

RADIO NACIONAL

English 11745, 15155, 15335 kHz
French 11765 kHz
German 6065, 15155, 15335, 17860 kHz
Spanish 9655, 11745 kHz

BULGARIA

RADIO SOFIA

English 6070, 7115, 9560, 9595, 9665, 9700,
9740, 11720, 11735, 11750, 11765, 11840,
11880, 15140, 15215, 15310, 15330 kHz
French 6070, 9560, 9595, 9700, 9740, 11720,
11735, 11765, 11840, 11880, 15140, 15215,
15310 kHz
German 6035, 6070, 7155, 9700, 11720,
15140 kHz
Spanish 9560, 9745, 9755, 11765, 11850, 11870,
11880, 15310, 15370 kHz

BURKINA FASO

RTV BURKINA

English 7230 kHz
French 4815 kHz
Multilingual 7230 kHz

BURMA

BURMA BROADCASTING SERVICE

English 5985, 7185, 9730 kHz

CAMEROON

R NATIONALE DU CAMEROUN

English 7150 kHz
French 7150 kHz
Multilingual 4850, 7240, 9746 kHz

RADIO DOUALA

English 4795 kHz
French 4795 kHz

RADIO GAROUA

English 5010 kHz
French 5010 kHz
Multilingual 5010 kHz

CANADA

BBC

English 6120 kHz

CANADIAN BROADCASTING CORP

English 6065, 6195, 9625, 11720 kHz
French 6065, 6195, 9625, 11720 kHz
Multilingual 6195, 9625, 11720 kHz

RADIO CANADA INTERNATIONAL

English 5960, 6140, **6170, 7130, 7155, 7275**,
9535, **9555**, 9650, **9740**, 9750, 9755, 9760,
11710, **11775**, 11825, **11840**, 11845, 11855,
11925, 11940, 11945, 11955, 11960, 15150,

15180, 15190, **15235**, 15260, 15325, 15440,
17820, 17875 kHz

French 5960, 6140, **6170, 7130, 7155, 7230**,
7275, 9535, **9555**, **9650**, **9740**, 9750, 9755,
9760, 11710, **11775**, 11825, **11840**, 11845,
11855, 11940, 11945, 11955, 11960, 15150,
15180, 15190, **15235**, 15260, 15325, 15440,
17820, 17875 kHz

German **7235**, **9555**, 15325, 17820 kHz

Spanish 9535, 11845, 11940, 15190 kHz

Multilingual **9555**, **11915**, **11935**, **15160**,
15325 kHz

CENTRAL AFRICAN REP

RTV CENTRAFRICAINE

French 5035 kHz

CHAD

RADIOIFFUSION NATIONALE

Multilingual 4904, 7120 kHz

CHINA (PR)

RADIO BEIJING

English 4130, 4200, 4800, 5250, 6825, 7480,
7590, 9290, 9440, 9550, 9570, 9700, 9860,
11455, 11500, 11515, 11650, 11660, 11755,
11860, 11905, 11970, 15165, 15195, 15280,
15385, 15520, 17795 kHz
French 3270, 4020, 7055, 7190, 7335, 7800,
9880 kHz
German 4130, 5250, 7590, 9860, 11500 kHz
Spanish 4800, 6933, 7375, 9590, 9640, 9700,
9860, 9945, 11445, 11650, 11685, 11970,
11980, 15100, 15120, 15180, 15200, 15510,
15520, 17650, 17680, 17775, 17795 kHz
Japanese 4960, 7480, 11515 kHz

CHINA (TAIWAN)

VOICE OF FREE CHINA

English **5985**, 9685, 9765, 9955, 15370 kHz
French 9765 kHz
Spanish 9765, 9955, **15130**, **15215**, **17805**,
17845 kHz

Japanese 7130 kHz

VOICE OF ASIA

English 7285, 7445 kHz

COLOMBIA

RADIO SUTATENZA

Spanish 5095 kHz

CONGO

RTV CONGOLAISE

French 6115, 9715, 15190 kHz
Multilingual 6115, 9715, 15190 kHz

COSTA RICA

FARO DEL CARIBE

Spanish 9645 kHz

CUBA

RADIO HABANA

English 6090, 6100, 6140, 9525, 9740, 11725,
11850, 15300, 17750, 17885 kHz
French 6090, 9730, 11710, 11795, 11850, 11950,
15125, 17795, 17885 kHz
Spanish 6060, 6090, 9550, 9655, 9730, 9770,

11710, 11760, 11950, 11970, 15125, 15230,
15300, 15340, 17750, 17795 kHz

CZECHOSLOVAKIA

RADIO PRAGUE

English 5930, 6055, 7345, 9540, 9605, 9630,
9740, 11855, 11990, 15110, 15205, 17705,
17840, 21505, 21705 kHz

French 5930, 6055, 7290, 7345, 9505, 9600,
11990, 15205 kHz

German 6055 kHz

Spanish 5930, 7345, 9540, 9630, 9740,
11990 kHz

Multilingual 6055, 7345, 9505, 9630 kHz
17840, 21505, 21705 kHz

DOMINICAN REPUBLIC

RADIO CLARIN

Spanish 11700 kHz

ECUADOR

HCBJ-VOICE OF THE ANDES

English 6095, 6130, 6205, 6230, 9655, 9745,
9845, 9860, 9870, 11740, 11835, 11910,
11925, 15115, 15155, 15220, 15270, 17790,
17890 kHz

French 6095, 9860, 11835, 15155, 15220, 15270,
17790 kHz

German 6075, 6090, 6205, 9655, 9720, 9725,
9845, 9860, 11835, 15250, 15270, 17790 kHz
Spanish 6050, 9765, 9860, 11835, 11910, 11960,
15160, 15270, 17790, 17890 kHz

Japanese 6075, 9715, 11835, 15295 kHz

RADIO NACIONAL

Spanish 15270, 17790 kHz

EGYPT

RADIO CAIRO

English 9475, 9675, 9805, 15255, 15375,
17675 kHz

French 9805, 15335 kHz

German 9805 kHz

Spanish 9475, 9740, 11715 kHz

EQUATORIAL GUINEA

RADIO NACIONAL

English 9553 kHz

Multilingual 4925.6, 4926 kHz

ETHIOPIA

"RADIO FREEDOM"

English 9595 kHz

"VOICE OF NAMIBIA"

Multilingual 9595 kHz

VOICE OF REVOLUTIONARY ETHIOPIA

English 7165, 9560 kHz

French 7165, 9560 kHz

FINLAND

RADIO FINLAND

English 9530, 9535, 9540, 9605, 9655, 11715,
11755, 11935, 11945, 15115, 15265, 15400,
15430, 17785, 17800 kHz

German 9530, 9655, 11755, 11935, 15265 kHz

FRANCE

RADIO FRANCE INTERNATIONAL

English 6175, 7135, 9535, 9545, 9550, 9790,

9800, 11705, 11880, 11995, 17620, 17795,
21685 kHz

French 5950, 5990, 6040, 6045, 6055, 6085,
6145, 6175, 7120, 7135, **7160**, 7280, 9535,
9545, 9550, 9575, **9715**, 9745, 9790, **9800**,
9805, 9810, 11660, 11670, 11695, 11700,
11705, 11790, 11800, 11805, 11845, 11880,
11930, 11955, 11965, **11995**, 15135, 15155,
15180, 15190, 15200, 15300, 15315, 15365,
15425, 15435, 17620, 17720, 17785, 17795,
17800, 17845, 17850, **17860**, 17875, 21580,
21620, 21685 kHz

German 6010, 6145, 7145 kHz

Spanish 5950, **5990**, 5995, 6055, 6085, 9535,
9715, 9790, **9800**, 11670, 11955, 11965,
11995 kHz

GABON

ADVENTIST WORLD RADIO

French 9630 kHz

AFRIQUE NUMERO UN

English 17750 kHz

French 4830, 7200, 11940, 15200, 15475, 17820,
17870 kHz

Multilingual 7200, 15200 kHz

RTV GABONAISE

Multilingual 4777, 7270 kHz

GERMANY (DR)

RADIO BERLIN INTERNATIONAL

English 5965, 6010, 6040, 6070, 6080, 6115,
6125, 6165, 7185, 7260, 7295, 9505, 9560,
9620, 9645, 9665, 9730, 11705, 11750, 11785,
11810, 11890, 11960, 11970, 11975, 15105,
15145, 15170, 15240, 15255, 15390, 15440,
15445, 17700, 17705, 17755, 17765, 17880,
21465, 21540 kHz

French 5965, 6040, 6115, 7185, 7260, 7295,
9505, 9620, 9665, 9730, 9770, 11705, 11750,
11785, 11810, 11890, 11970, 15105, 15145,
15170, 15255, 15390, 17755 kHz

German 5965, 6010, 6040, 6070, 6080, 6105,
6115, 6125, 7185, 7295, 9505, 9560, 9600,
9620, 9635, 9645, 9665, 9730, 9770, 11700,
11705, 11750, 11785, 11810, 11825, 11890,
11960, 11970, 11975, 15105, 15170, 15240,
15445, 17700, 17705, 17755, 17765, 17880,
21540 kHz

Spanish 6010, 6040, 6070, 6125, 6165, 7185,
7260, 7295, 9505, 9600, 9620, 9645, 9730,
11785 kHz

STIMME DER DDR

German 6115 kHz

GERMANY (FR)

BAYERISCHER RUNDFUNK

German 6085 kHz

DEUTSCHE WELLE

English 5960, **5995**, 6010, 6035, **6040, 6085**,
6120, 6130, 6145, **6170, 6185**, 7110, 7130,
7150, 7195, **7200, 7225**, 7285, **9545, 9565**,
9585, **9600**, 9610, **9615**, 9625, **9640, 9650**,
9690, 9700, 9735, 9745, 9765, 11765, **11785**,
11945, 11965, 15105, 15135, 15150, 15160,
15185, 15205, 15320, 15330, **15410**, 17765,
17780, **17800**, 17825, **21500, 21560**, 21600,
21680 kHz

French 7150, 7195, **7225, 9565**, 9610, 9625,
9700, **9735**, 9765, 11765, 11945, **11965**,
15135, 15185, **15410**, 17765, **17800**, 17825,
21600 kHz

German 3995, 6040, **6045, 6065**, 6075, **6085**,
6100, 6145, **6160**, 7130, 7145, 7175, **7225**,
7285, **9545**, 9570, **9605**, 9615, **9640**, 9645,
9650, **9690**, 9700, 9715, **9735, 11705**, 11720,
11730, 11765, 11785, 11795, 11820, 11855,
11945, 11955, **15105, 15210, 15245**, 15260,
15270, 15275, 15320, **15355, 15410, 17715**,
17810, 17845, **17860, 17875**, 21560,
21680 kHz

Spanish 6010, 6045, 6120, 6130, 6145, 7235,
9545, 9565, 9605, 9690, 9700, **9735, 11705**,
11785, 11795, 11810, **11865, 15105**,
15205 kHz

Japanese **7170, 7265, 9505, 9640**, 9670, 9680,
11805, 11810, **11845, 11865**, 11910, 15185,
15400, 15405 kHz

R AMERICAN SECTOR

German 6005 kHz

GHANA

GHANA BROADCASTING CORPORATION

English 3366, 7295 kHz

Multilingual 4915 kHz

GREECE

FONI TIS HELLADAS

English 7395, 9420, 9860, 11645 kHz

French 9420 kHz

Spanish 7395, 9420, 9860 kHz

Multilingual 6205, 7370, 9860, 9905, 11645,

11915, 15405, 15630, 17565, 17770 kHz

GUAM

KTWR-TRANS WORLD RADIO

English 9510, 9820, 11840, 15350 kHz

Japanese 9820, 11765, 11840 kHz

GUINEA

RTV GUINEENNE

English 7125, 9650, 15310 kHz

French 7125, 9650, 15310 kHz

Multilingual 7125, 9650, 15310 kHz

HOLLAND

RADIO NEDERLAND

English 5955, **6020, 6165**, 7175, **9515, 9540**,
9590, 9630, 9650, 9715, 9895, 11720, **11735**,
11740, 11930, 13770, 15560, **17575, 17605**,
21480, 21485, 21685 kHz

French **9540**, 9895, 11730, **11740**, 15280, 15560,
17605, 21685 kHz

Spanish 6020, 6110, **6165, 7230, 9590**, 9610,
9895, 11930, **15315, 17605** kHz

HUNGARY

RADIO BUDAPEST

English 6025, 6110, 7220, 7225, 9520, 9585,
9835, 11910, 15220, 17710 kHz

German 7155, 7220, 7225, 9585, 9835,
11910 kHz

Spanish 6025, 6110, 7225, 9520, 9585, 9835,
11910 kHz

INDIA

ALL INDIA RADIO

English 6035, 6050, 7150, 7215, 9545, 9550,
9595, 9665, 9755, 9910, 11620, 11715, 11765,
11795, 11810, 11845, 11865, 11870, 15110,
15130, 15175, 15230, 15265, 15320, 15335,
17387, 17705, 17875 kHz

French 9755, 11865, 15365, 17830 kHz

Multilingual 6045, 6050, 6145, 7110, 7150, 7160,
7265, 7280, 9545, 9610, 9615, 9675, 10335,
11620, 11730, 11815, 11830, 11850, 11895,
15160, 15245, 15250, 15305, 15320,
17705 kHz

INDONESIA

VOICE OF INDONESIA

English 11790, 15150 kHz

French 11790, 15150 kHz

German 11790, 15150 kHz

Spanish 11790, 15150 kHz

Japanese 11790, 15150 kHz

IRAN

VOICE OF THE ISLAMIC REPUBLIC

English 9022, 9765, 11930, 15084 kHz

French 9022, 9765, 11930, 15084 kHz

German 9022, 9765, 11930 kHz

Spanish 9022, 15084 kHz

IRAQ

RADIO BAGHDAD

English 7170, 11750 kHz

ISRAEL

KOL ISRAEL

English 7412, 9009, 9390, 9435, 9815, 11585,
11605, 11655, 12025, 12027.5, 15560, 15585,
17630 kHz

French 7412, 9009, 9390, 9435, 9815, 11585,
11605, 11655, 12025, 12027.5, 15560, 15585,
17630 kHz

Spanish 7412, 9009, 9435, 9815, 11585,
11655 kHz

ITALY

RTV ITALIANA

English 5990, 6165, 7235, 7275, 7290, 9575,
9710, 9775, 11800, 11905, 15330 kHz

French 5990, 7235, 7290, 9575, 9710, 11800,
11905 kHz

German 5990, 7275, 7290, 9575 kHz

Spanish 5990, 7275, 9575, 9710, 11800, 11905,
15245 kHz

Multilingual 6060 kHz

IVORY COAST

RTV IVOIRIENNE

English 11940 kHz

French 6015, 9620, 11920 kHz

JAPAN

NIHON SHORTWAVE BROADCASTING

Japanese 3925, 6055, 6115, 9595, 9760 kHz

RADIO CANADA INTL

Japanese 6055, 9595 kHz

RADIO JAPAN/NHK

English 5990, 6080, 7105, 9505, 9575, 9605,

9645, 11710, 11840, 11875, 11950, 15195,
15235, 15300, 17755, 17810, 17825, 21610,
21640 kHz

French 6080, 7105, 9645, 11840 kHz

German 6080, 7105 kHz

Spanish 5990, 9525, 11950, 15195, 17825,
21610, 21640 kHz

Japanese 5990, 9505, 9525, 9575, 9605, 9645,
11840, 11950, 15195, 15235, 17755, 17810,
17825, 21610, 21640 kHz

JORDAN

RADIO JORDAN

English 9560 kHz (irregular)

KAMPUCHEA (CAMBODIA)

VOICE OF THE PEOPLE

English 11938 kHz

French 11938 kHz

KENYA

VOICE OF KENYA

Multilingual 4885, 11800 kHz

KOREA (DPR)

"VOICE OF REUNIFICATION"

English 4556.8 kHz

RADIO PYONGYANG

English 6576, 7205, 9325, 9555, 9625, 9715,
9750, 9765, 11830, 11880, 12000, 13750,
15140, 15160, 15180, 15245, 15305,
15340 kHz

French 6165, 6576, 7205, 9325, 11830, 11880,
12000, 13750, 15340, 15415 kHz

German 6576, 7205, 9325 kHz

Spanish 6576, 7205, 9325, 9555, 9715, 9750,
11755, 15140, 15160 kHz

Japanese 3015, 6540, 9505, 9600, 11780,
11830 kHz

KOREA (REPUBLIC)

RADIO KOREA

English 6165, 6485, 7275, 7550, 9570, 9640,
9750, 9870, 11740, 11810, 13670, 15375,
15395, 15575 kHz

French 7275, 11805, 11810, 13670, 15575 kHz

German 6485, 7275, 7550, 9870, 13670,
15575 kHz

Spanish 6485, 7550, 9570, 9870, 11725, 11810,
15575 kHz

Japanese 6165, 6175, 7275, 9640, 15375 kHz

KUWAIT

RADIO KUWAIT

English 11675, 15345 kHz

LESOTHO

RADIO LESOTHO

English 4800 kHz

Multilingual 4800 kHz

LIBERIA

LIBERIAN BROADCASTING SYSTEM

Multilingual 3255, 6090 kHz

RADIO ELWA

English 11830 kHz

French 6070, 11830 kHz

Multilingual 9550, 11830 kHz

LIBYA

RADIO JAMAHIRIYA

English 11815, 15450 kHz (irregular)

LUXEMBOURG

RADIO LUXEMBOURG

English 6090 kHz

French 15350 kHz

German 6090 kHz

MADAGASCAR

RADIO MADAGASIKARA

French 5010 kHz

Multilingual 3288, 6135 kHz

MALAWI

MALAWI BROADCASTING CORP

English 5995 kHz

Multilingual 3380 kHz

MALAYSIA

RADIO MALAYSIA

English 7295 kHz

Multilingual 9665 kHz

VOICE OF MALAYSIA

English 6175, 9750, 15295 kHz

MALI

RTV MALIENNE

English 5995 kHz

Multilingual 5995 kHz

MALTA

IBRA RADIO

English 9515 kHz

French 9720 kHz

German 6110, 9515 kHz

RADIO MEDITERRANEAN

English 6110 kHz

French 6110 kHz

Arabic 6110 kHz

MAURITANIA

ORT DE MAURITANIE

French 4845 kHz

Spanish 4845 kHz

Multilingual 4845, 7245 kHz

MEXICO

RADIO MEXICO INTERNATIONAL

Spanish 15430 kHz (irregular)

MONACO

RADIO MONTE CARLO

Multilingual **9795, 15465** kHz

TRANS WORLD RADIO

English 7160, 9495, 11695 kHz

French 7235 kHz

German 6220, 7205, 9805 kHz

Multilingual 9495, 9775, 11660 kHz

MONGOLIA

RADIO ULAN BATOR

English 7235, 9575, 9616, 12015, 15305 kHz

MOROCCO

RADIO MEDI UN

Multilingual 9575, 15390 kHz

NAMIBIA

RADIO SOUTH WEST AFRICA

Multilingual 3295 kHz

SOUTH AFRICA BROADCASTING CORP

Multilingual 4965 kHz

NEPAL

RADIO NEPAL

English 5005, 7165 kHz (irregular)

NETHERLANDS ANTILLES

TRANS WORLD RADIO

English 9535, 11815 kHz

German 9535, 15355 kHz

Spanish 9535, 9665, 11895, 15355 kHz

Multilingual 11875 kHz

NICARAGUA

LA VOZ DE NICARAGUA

English 6014.8 kHz

Spanish 6014.8 kHz

NIGERIA

FEDERAL RADIO CORPORATION

Multilingual 6050 kHz

RADIO NIGERIA

Multilingual 3326, 4770, 4990, 6089, 7285 kHz

VOICE OF NIGERIA

English 7255, 11770, 15120, 15185 kHz

French 7255, 15120 kHz

German 15120 kHz

NORTHERN MARIANA IS

KYOI/CSM WORLD RADIO (planned)

Multilingual 9665, 9670, 11900, 15190,

15405 kHz

NORWAY

RADIO NORWAY INTERNATIONAL

English 6015, 6030, 6040, 9520, 9525, 9580,

9590, 9605, 9650, 9655, 11860, 11870, 11925,

11935, 15165, 15180, 15185, 15205, 15225,

15230, 15245, 15265, 15300, 15305, 15310,

17740, 17770, 17830, 17850 kHz

Multilingual 6015, 6030, 6040, 9520, 9525, 9580,

9590, 9605, 9650, 9655, 11860, 11870, 11925,

11935, 15165, 15180, 15185, 15205, 15225,

15230, 15245, 15265, 15300, 15305, 15310,

17740, 17770, 17830, 17850 kHz

PAKISTAN

RADIO PAKISTAN

English 7315, 9465, 9885, 11670, 11675, 11740,

11810, 15115, 15420, 15595, 15605,

17660 kHz

French 9465, 11790, 12015 kHz

Multilingual 15605, 17660 kHz

PAPUA NEW GUINEA

NATIONAL BROADCASTING COMM OF PNG

Multilingual 3925 kHz

PHILIPPINES

FAR EAST BROADCASTING COMPANY

English 6030, 9665, 11850, 11865, 15350,

15430 kHz

German 6120, 7240 kHz

RADIO VERITAS ASIA

English 9540, 15195 kHz

Japanese 9550, 9560 kHz

POLAND

RADIO POLONIA

English 6095, 6135, 7125, 7145, 7270, 7285,

9525, 9540, 9675, 11815, 11840, 15120 kHz

French 6095, 6135, 7125, 7270, 7285, 9525,

9540, 9675, 11840, 15120 kHz

German 6095, 6135, 7125, 7270, 7285, 9540 kHz

Spanish 6135, 7145, 7270, 9525, 9675, 11840,

15120 kHz

PORTUGAL

ADVENTIST WORLD RADIO

English 9670 kHz

German 9670 kHz

RADIO PORTUGUESA

English 6095, 7155, 7200, 9565, 9605, 9680,

9705, 9740, 15105, 15250 kHz

French 7155, 7200, 9605, 9740, 15250 kHz

German 7155, 7200, 9605, 9740 kHz

ROMANIA

RADIO BUCHAREST

English 5990, 6055, 6155, 7135, 7145, 7165,

7195, 9510, 9570, 9640, 9685, 9690, 9750,

11740, 11775, 11810, 11830, 11840, 11885,

11940, 15250, 15335, 15380, 17790, 17805,

21665 kHz

French 5990, 6055, 6190, 7195, 9570, 9590,

9685, 9690, 9750, 11775, 11790, 11810,

11885, 11940, 15250, 15335, 15365 kHz

German 5990, 7135, 7195, 9690, 11940,

15250 kHz

Spanish 5990, 6150, 6155, 7225, 9510, 9570,

9690, 11810, 11940 kHz

RWANDA

RADIO DE LA REPUBLIQUE RWANDAISE

Multilingual 6055 kHz

SAUDI ARABIA

BROADCASTING SERVICE OF THE KINGDOM

English 9705, 9720 kHz

French 9705, 9720 kHz

SENEGAL

ORT DU SENEGAL

English 4890 kHz

French 4890 kHz

Multilingual 4890, 7173 kHz

SEYCHELLES

FAR EAST BROADCASTING ASS'N

English 9590, 11865, 15120, 17780 kHz

French 11900 kHz

SIERRA LEONE

SIERRA LEONE BROADCASTING SERVICE

French 5980 kHz

Multilingual 5980 kHz

SINGAPORE

SINGAPORE BROADCASTING CORP

English 5010, 5052, 11940 kHz

SOMALIA

RADIO MOGADISHU

English 6095 kHz

SOUTH AFRICA

RADIO RSA

English 3230, 4810, 4990, 5980, 6010, 7270,

9585, 9615, 11900, 15220, 21590 kHz

French 4810, 7270, 9585, 11900, 15220,

21590 kHz

German 11880, 11900, 15185, 17850 kHz

Spanish 6065, 6160, 9580 kHz

SOUTH AFRICAN BROADCASTING CORP

English 3250, 4835, 7170, 11790 kHz

Multilingual 3215, 4880, 7205 kHz

SPAIN

RADIO EXTERIOR DE ESPANA

English 5900, 6055, 6125, 7105, 9630, 9780,

11690, 11880 kHz

French 5900, 7105, 9780, 11690 kHz

Spanish 6020, 6055, 6125, 6140, 7450, 9360,

9530, 9570, 9620, 9630, 9650, 11635, 11730,

11790, 11880, 11890, 11920, 11940, 11945,

15215, **15365**, 15395, 15535, 17770, 17845,

17890, 21595 kHz

SRI LANKA

SRI LANKA BROADCASTING CORP

English 9720, 11800 kHz

SURINAME

RADIO SURINAME INTERNATIONAL

Multilingual **17755** kHz

SWAZILAND

SWAZI COMMERCIAL RADIO

Multilingual 4980 kHz

TRANS WORLD RADIO

English 9550 kHz

French 7195 kHz

SWEDEN

RADIO SWEDEN INTERNATIONAL

English 6065, 9615, 9630, 9695, 9710, 9745,

11705, 11785, 11845, 11940, 11950, 15110,

15115, 15190, 15240, 15345, 15390, 15435,

17840, 17845, 21570 kHz

French 6065, 9615, 9630, 11805, 15345,

21690 kHz

German 6065, 9630, 9655, 9760, 11805 kHz

Spanish 6065, 9605, 9695, 9710, 11705, 11955,

15240 kHz

SWITZERLAND

RED CROSS BROADCASTING SERVICE

English 7210, 9560, 9725, 11745, 11795, 11905,

11955, 15305, 17785, 17830 kHz

French 7210 kHz

German 7210 kHz

Spanish 6135, 7210, 9625, 9725, 11925 kHz

Multilingual 11955, 15420, 17830 kHz

SWISS BROADCASTING CORPORATION

French 3985, 6165, 9535 kHz

German 3985, 6165, 9535 kHz

SWISS RADIO INTERNATIONAL

English 3985, 6135, 6165, 6190, 9535, 9560,

9590, 9625, 9725, 11745, 11795, 11905,

11925, 11935, 11955, 15305, 15430, 15570,

17785, 17830 kHz

French 3985, 5965, 6135, 6165, 9535, 9560,

9590, 9625, 9725, 9885, 11745, 11795, 11905,

11935, 11955, 15305, 15420, 15430, 15570,

17785, 17830 kHz

German 3985, 5965, 6135, 6165, 9535, 9560,

9590, 9625, 9725, 9885, 11745, 11795, 11905,

11925, 11955, 15305, 15420, 15430, 15570,

17785, 17830 kHz

Spanish 5965, 6035, 6135, 9590, 9625, 9680,

9725, 9885, 15305 kHz

SYRIA

SYRIAN BROADCASTING SERVICE

English 11625, 7455 kHz

French 12085 kHz

German 7455 kHz

Spanish 9485, 11640 kHz

TANZANIA

RADIO TANZANIA

English 9684 kHz

THAILAND

RADIO THAILAND

English 9655, 11905 kHz

French 9655, 11905 kHz

Japanese 9655, 11905 kHz

TOGO

RADIO LOME

English 5047, 7265 kHz

Multilingual 5047, 7265 kHz

TURKEY

TURKISH RADIO-TV CORPORATION

English 6105, 7205, 7215, 9560, 9730, 17725,

17885 kHz

French 7215 kHz

German 7215 kHz

UNITED ARAB EMIRATES

UAE RADIO

English 9550, 11730, 11955, 15300, 15320,

17775, 17830, 21605, 21700 kHz

UNITED KINGDOM

BBC

English **3915**, 3955, **5965**, 5975, **6005**, 6010,

6015, 6045, 6050, 6125, 6150, 6195, **7105**,

7130, **7135**, 7150, **7160**, 7165, 7170, 7185,

7210, 7260, 7325, 9410, **9510**, **9515**, **9590**,

9600, 9610, 9640, 9660, **9715**, 9750, 9760,

9915, **11745**, **11750**, **11775**, 11780,

11820, **11860**, **11955**, 12095, 15070,

15105, 15205, 15215, **15260**, 15270, **15310**,

15390, **15400**, 17705, 17780, 17790, 17810,

17880, **17885**, 21470, 21550, 21630, **21660**,

21710 kHz

French 3955, 6120, 6125, 6195, **7105**, 7150,

7165, 7210, 7295, **9600**, **9610**, 11720, 11780,

11825, **15105**, 15115, 15150, 17810,

21640 kHz

German 3955, 6195, 7130, 7260, 7295, 9530,

9565, 9750 kHz

Spanish **6055**, 6110, 7140, **9765**, **11820**, **17830**,

21490 kHz

USA

AFRTS-US MILITARY (relays CBS, etc)

English 6030, 6125, 6140, 9530, 9590, **9700**,
11730, 11790, 11805, **15265**, 15330, 15345,
15355, **15400**, 15430, 17765, 21570 kHz

KCBI

English 11790 kHz

KGEI-VOICE OF FRIENDSHIP

English 15280 kHz
German 15280 kHz
Spanish 9615, 15280, 15355 kHz

KNLS-VOICE OF THE NEW LIFE

English 11850, 11960 kHz

KVOH-VOICE OF HOPE

English 6005, 9525, 9852.5, 11930, 12025,
15566, 17775 kHz

RADIO MARTI

Spanish 6075, 9525, 9570, 9590, 11815,
11930 kHz

VOICE OF AMERICA

English **3990**, 5745, **5955**, **5965**, **5995**, **6035**,
6040, **6045**, **6060**, 6080, **6090**, **6095**, **6110**,
6125, 6130, **6190**, **7170**, **7195**, **7200**, **7205**,
7260, **7275**, **7280**, **7325**, 9350, 9455, 9530,
9540, **9545**, **9550**, **9575**, **9635**, 9670, **9700**,
9715, **9740**, **9760**, **9770**, 9775, 10234, 10869,
11090, 11580, 11680, **11715**, **11720**, 11740,
11760, **11775**, **11805**, **11835**, **11840**, **11915**,
11920, **11925**, 14398, **15160**, **15185**, **15205**,
15215, **15260**, **15290**, 15315, 15375, 15410,
15415, **15425**, **15445**, 15580, **15600**, **17735**,
17740, 17765, 17775, 17785, 17800, **17820**,
17830, 17865, **17870**, 18137.5, 19480, **21540**,
21545 kHz

French 6020, **6180**, **6190**, **7135**, **7265**, 9565,
10234, 10869, 11740, **11810**, **11850**, **11875**,
11890, **11920**, 15160, 15195, **15315**, **15400**,
17640, **17705**, **17730**, 19261.5, 19480, 21470,
21680 kHz

German 15715 kHz

Spanish 5745, 6040, 6140, 6155, 6190, 6873,
9505, 9525, 9540, 9565, **9580**, 9640, 9670,
9840, 11740, 11890, 11895, 11920, 11950,
15160, 15185, 15195, 15265, **15285**, **15385**,
15390, 15400, 17705, **17710**, 17715, 17730,
17740, 17765, 17810, **17830**, **17885**, 21560,
21580, 21590, 21610 kHz

Multilingual **7175**, 9575, **9750**, 10869, **11710**,
11915, **15600**, **17780**, **21500** kHz

VOICE OF THE OAS

Spanish 9565, 11830, 15160 kHz

WHRI-WORLD HARVEST RADIO

English 5995, 7355, 9620, 9690, 9770, 11770,
11790, 15105, 15310 kHz

WINB-WORLD INTL BROADCASTERS

English 15185, 17730 kHz
Multilingual 15145 kHz

WMLK-ASSEMBLIES OF YAWEH

English 9455, 15150 kHz

WRNO WORLDWIDE

English 6185, 7355, 9715, 9852.5, 11705, 11965,
15420 kHz

German 11965 kHz

Multilingual 6185 kHz

WYFR-FAMILY RADIO

English **6300**, 7355, 7365, **7845**, 9455, 9535,

9590, 9680, 9715, 9852.5, **11550**, 11830,
15055, 15170, 15215, 15260, 15400, 15440,
15566, 17640, 17750, 17845, 21525,
21615 kHz

French 6175, 9535, 9605, 15375, 15440, 17750,
21525, 21615 kHz

German 7355, 7365, 15440, 15566, 17845,
21615 kHz

Spanish 6065, 6105, 6175, 9550, 9605, 9705,
9715, 11790, 11855, 15215, 15375, 15445,
17805, 17845 kHz

USSR

"RADIO MAGALLANES"

Spanish 7240, 7440, 9450, 9490, 9640, 9650,
9715, 9810, 11630, 11650, 11745, 11800,
11860, 11890, 11900, 12020, 12030,
12040 kHz

KAZAKH RADIO

German 5970 kHz

RADIO AFGHANISTAN

English 11880 kHz
German 11880 kHz

RADIO KIEV

English 6020, 6165, 7175, 7195, 7205, 7280,
7320, 9560, 9685, 9710, 9800, 9820, 11720,
11790, 11960, 13605, 15180 kHz

German 5980, 6020, 6165, 7175, 7320, 9560,
9650 kHz

RADIO MOSCOW/RP&P

English 4060, 4825, 4860, 5900, 5905, 5920,
5940, 5960, 5980, 6005, 6020, 6045, 6050,
6090, 6120, 6130, 6145, 6175, 7100, **7115**,
7130, 7135, 7140, 7150, 7160, 7165, 7175,
7185, 7195, 7245, 7260, 7265, 7290, 7295,
7300, 7305, 7310, 7315, 7320, 7335, 7355,
7360, 7390, 9450, 9470, 9480, 9490, 9520,
9530, 9550, 9560, 9575, 9580, 9600, 9610,
9625, 9635, 9640, 9645, 9650, 9655, 9685,
9700, 9705, 9710, 9720, 9745, 9750, 9760,
9765, 9775, 9780, 9785, 9795, 9810, 9820,
9865, 11670, 11675, 11690, 11700, 11705,
11710, 11715, 11720, 11725, 11730, 11735,
11745, **11750**, 11755, 11765, 11770, 11775,
11780, 11785, 11790, 11800, 11805, 11810,
11820, 11830, **11840**, 11845, **11850**, 11860,
11890, 11900, 11950, 11955, 11975, 12000,
12005, 12010, 12015, 12030, 12040, 12045,
12050, 12055, 12060, 12065, 12075, 13605,
13635, 13645, 13655, 13665, 13680, 13705,
15110, 15125, 15140, 15150, 15155, 15170,
15175, 15195, 15210, 15220, 15245, 15260,
15265, 15280, 15285, 15295, 15320, 15330,
15370, 15405, 15420, 15425, 15440, 15455,
15480, 15490, 15500, 15510, 15515, 15530,
15535, 15540, 15585, 17555, 17680, 17720,
17730, 17775, 17815, 17820, 17835, 17850,
17860, 17875, 17880, 17885, 21450, 21465,
21505, 21530, 21545, 21585, 21670, 21690,
21725, 21740 kHz

French 5950, 6010, 6120, 7195, 7240, 7320,
7330, 7360, 7370, 7440, 9450, 9470, 9480,
9490, 9515, 9560, 9610, 9630, 9640, 9650,
9675, 9710, 9745, 9760, 9785, 9810, 11630,
11670, 11690, 11700, 11715, 11725, 11745,
11800, 11805, 11890, 11900, 11930, 11950,
11960, 11970, 11980, 11990, 12010, 12020,

12050, 12055, 13635, 15125, 15175, 15210,
15465, 15470, 15490, 15510, 15535, 15550,
15585, 17680, 17760, 17860 kHz

German 5920, 5950, 5960, 6145, 7360, 9450,
9580, 11870, 11960, 12020, 13635, 15125,
15420, 17840 kHz

Spanish 4825, 5920, 5960, 5975, 6130, 6145,
7135, 7240, 7250, 7280, 7335, 7340, 7360,
7370, 7420, 7440, 9450, 9490, 9520, 9580,
9610, 9640, 9650, **9665**, 9670, 9675, 9685,
9710, 9720, 9745, 9785, 9795, 9810, 11630,
11650, 11670, 11700, 11705, 11745, 11800,
11805, **11850**, 11860, 11870, 11890, 11900,
11920, 11930, 11960, 11980, 12010, 12020,
12030, 12040, 13660, 15140, 15480 kHz

Japanese 5940, 5950, 5960, 6020, 6050, 7170,
7245, 7260, 7280, 7340, 9520, 9540, 9565,
9795, 9865, 9895, 11730, 11915, 12030,
15245, 17885 kHz

RADIO TASHKENT

English 5945, 5985, 7325, 9540, 9600, 9650,
9715, 11785, 15460 kHz

RADIO TIKHIY OKEAN

English 3995, 4485, 5900, 5940, 5950, 5980,
6020, 6035, 6080, 6190, 7175, 7210, 7260,
7370, 9620, 9635, 9795, 9810, 11730, 11815,
11900, 11910, 11950, 12030, 12050, 12070,
15265, 17775, 17870, 21515, 21530 kHz

RADIO VILNIUS

English 6100, 9685, 11720, 11790, 11960,
13605, 15180 kHz

RADIO YEREVAN

English 11790, 13605, 15180 kHz

RS SOV BELORUSSIA

English 6175 kHz
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9650, 11700, 11725, 11740, 11760, 11775,
11810, 11830, 11845, 11865, 15120, 15190,
17730, 17840, 17845, 17865, 21485 kHz

French 6015, 6150, 6185, 6190, 6252, 7250,
9605, 9625, 9645, 11700, 11725, 11740,
11760, 11810, 11845, 15120, 15190, 17730,
17840, 21485 kHz

German 6185, 6190, 6252, 7250, 9645,
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Spanish 6015, 6035, 6150, 6190, 6252, 7250,
9615, 9645, 9735, 11740, 11845, 11955,
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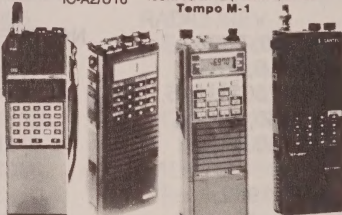
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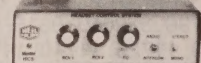


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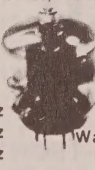
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Henry Shapiro, United Press International's Moscow correspondent since the Forties, tells the story of a strange telephone call he got during World War II. It was early on the morning of June 22, 1941, four hours after Hitler attacked the Soviet Union along a 3,000-kilometer front. The phone call was from the foreign editor of Tass, the Soviet Union's sole news agency.

"Is it true," the editor asked Shapiro, "that the BBC reported that the Germans have invaded the Soviet Union?" It was. But the Soviet people were not to learn through their own media that they were at war until noon — a full eight hours after German troops began their drive into the heart of Mother Russia.

Much News Missed by Domestic Media

Today, it's easy to look at such an incident, shrug, and blame it on the lack of technology at the time or the philosophy of the Soviets. But despite mind-boggling advances in technology that allow instantaneous global communications, it's still not easy to find out what's going on around the world from the domestic media...and that applies not only to the Soviet Union.

Take Sweden, for example. A modern, internationally active nation of over eight million people, it is rarely reported on by the North American press. In fact, in 1986 only two major events caught the attention of the US press: the assassination of Prime Minister Olaf Palme and the detection of Chernobyl-generated radiation by a Swedish nuclear power group.

Naturally, there is a great deal more to Sweden than an isolated instance of political violence and the odd fallout from a nuclear reactor run amuck. How does one find out about it, or its even less-reported neighbors of Norway and Finland?

The answer is world radio. Radio Sweden International broadcasts a program called *Nordic Newsweek*, which focuses on events in the entire region, as well as Sweden. Radio Finland offers the excellent *Northern Report*, and Radio Norway International, though limited to Sunday-only programs in English, offers *Norway Today*.



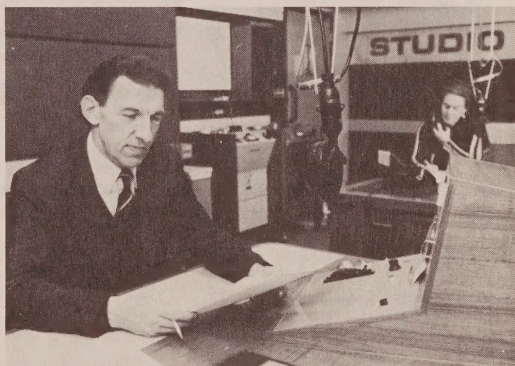
Israel Radio's Sara Manobla

News from Specialized World Regions

In addition to the news, all three of these Nordic nations offer interesting, easy-to-hear programs that not only provide listeners local and regional news, but also give them an opportunity to enjoy a bit of Scandinavian culture and meet the Nordic people. In short, these stations provide a well-rounded and in-depth look at each country and region so as to provide us with an understanding as to why these events have taken place.

BBC: The Finest in Radio Journalism

But not all news on world radio is regional. The British Broadcasting Corporation (BBC), renowned throughout the world — even in France, according to the Paris newspaper *Le Monde* — for its accuracy, timeliness and lack of bias, offers bulletins of world news unequalled in scope at the top of almost every hour. In addition, in-depth news programs, such as *Twenty-Four Hours*, provide analyses of the main news of the day. *Twenty-Four Hours* is heard four times daily, after the regular newscasts at 0500, 0700, 1300 and 2000 World Time, and is but one of several such programs.



James Vowden and Pam Creighton, newsreaders on the BBC World Service.

The BBC, like many other international broadcasters, goes yet one step further. On a typical day, you may hear a program on gardening hosted by the popular Margaret Howard, have a chance to pick up the phone and speak directly to the Prime Minister, or hear a stage version of George Bernard Shaw's *Pygmalion* featuring a galaxy of top-flight performers. Rock concerts, classical music, sports and inspiration are all a regular part of world radio's daily draw.

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WORLD RADIO: WHAT IT'S ALL ABOUT

by

George Wood, Radio Sweden International

Right now, as you read this book, the air around you is filled with all manner of radio waves. The crackle of radar and space communications, police and fire departments, airlines and taxis. There's the local broadcast station humming away and the "ham" down the block. But amongst all of these invisible waves that constantly flow through our bodies are some very weak and fragile signals. They are weaker than the others because they have traveled around the world. These signals are known as "shortwave."

Radio Programs Heard Worldwide

Shortwave signals come from radio stations located in virtually every part of the globe. There are hundreds of stations in Africa, Asia, the Pacific and the Americas. And they broadcast programs of such variety that even the most ardent cable TV viewer — intoxicated with the number of channels available — would be boggled. There is news, sports, entertainment, history, commentary, talk shows, music and more music...each reflecting a different perspective, a different people.

By comparison, domestic radio, with its limited formats and local orientation, pales. As a result, the average shortwave listener is far more knowledgeable about what is going on in the world than someone who only reads, say, the *Kenosha News*.

Radios for Listening

To listen to these stations, you have to have a radio, specifically one that can pick up world radio signals. The 1950's pre-hifi sets and all their brothers and sisters are enough to get a person started, but they do have their limitations. You can hear a few stations — usually poorly — on such a receiver, but you're depriving yourself of much of the ease and enjoyment by not investing in what is, after all, the primary tool of the trade.

Quality shortwave receivers used to be big and expensive, with long antennas and earphones. No more. The same electronics revolution that brought us mini-calculators, home computers and video games has created a revolution in receiver design. A few years ago, the Japanese, after ensuring that every home in the country had a stereo, color TV and VCR, looked for the next product to make a profit on. They hit upon shortwave radio and, rather quickly, the competitive Japanese market was bombarded with new, small receivers filled with the latest technology. Almost overnight, millions of Japanese young people had begun to tune in the world via shortwave. The successful Japanese manufacturers turned their eyes to Western markets.

A good place to start looking for a new world-band radio is in the pages of RADIO DATABASE INTERNATIONAL. This book lists virtually every radio station in the world, as well as reviews of the latest radios on the market. Larry Magne's receiver

reviews are considered the standard reference on new receivers.

There are a number of features to look for in a receiver. Cost is probably the most important and most obvious — you have to stick to something that matches your funds. Fortunately, the cost of good world radios has come down, and the frantic pace of technology often means that last year's model can be purchased inexpensively from specialty firms, discount houses or from other listeners who want this year's radio.

Size is also important. Do you want a radio that you can take with you while trekking across South America? Or is your radio going to become a permanent fixture on the living room desk?

Accuracy of tuning is another factor. If you want to hear the BBC on 9510 kHz, can you read "9510" on the dial, or is it just someplace between "9" and "10"? Today, with digital readout — like the display on your pocket calculator — finding an exact frequency is as easy as keying in a number on your Touch-tone phone. Punch in a frequency on the keypad, see it on the display, then sit back and listen. Otherwise, if you choose a radio without digital read-out you may find yourself spending more time looking for a station than listening to it.

Among the most important characteristics of a world-band radio are selectivity and sensitivity. Sensitivity indicates just how strong a signal must be before you can pick it up. A radio with good sensitivity will receive not only the high-powered stations but also the weaker ones. A radio with poor sensitivity will miss out on all but the strongest.

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Unfortunately, many new radios that are sensitive lack proper selectivity. For example, if you're listening to a weak station on 9535 kHz, will the strong station alongside on 9530 kHz bleed over and overpower it? A selective radio will allow you to hear the signal on 9535 kHz while the one on 9530 kHz is attenuated. A poor receiver will have the station on 9530 kHz all over the dial.

Other factors include whether an ac power is required or if you can use batteries; if there is a built-in 24-hour clock for World Time; tone controls; the ability to change the bandwidth to eliminate interference, and so on.

Radios Come with Built-in Antennas

After you've purchased your receiver, the next question concerns antennas. Most of the new radios are so good that they do very well with only the built-in whip antenna. In fact, if you try to put on an outside antenna, you may find that you're bringing in too many signals and that everything is just a mess. The radio might even "overload". So even if your radio has a connector for an external antenna, it may work so well that you won't even want to use it.

Another recent development is the active antenna. It's a small box with a whip antenna that can approach the level of performance of a long outside antenna. Some are, in fact, quite good. But, again, most receivers do very well with only the antenna that comes with it.

Where to Find Stations

Once you've decided on an antenna, you're all set to go exploring the world of radio. The first question is what to go looking for, and the possibilities are endless.

You know from listening to ordinary broadcasts that each station occupies a particular spot on the dial day-in-and-day-out. As you know from looking at any ordinary radio, the AM band runs from 540 to 1600 kHz. These frequencies are part of what is called the mediumwave spectrum. Below that is longwave and above it is shortwave.

On the shortwave bands, certain sections are reserved for domestic radio stations, whereas others are set aside for both domestic and international stations. Each group of frequencies is given a title — "meter bands" — based roughly on wavelength. With today's new world-band radios, you don't need to know meter bands, but this designation can be helpful in identifying the range of frequencies you're listening to. These meter bands are delineated in the "Lexicon" found towards the back of your RADIO DATABASE INTERNATIONAL.

The 120, 90 and 60 meter bands are restricted to use by stations in the tropics only. This is because shortwave is better at rejecting static than is mediumwave AM, plus shortwave is more cost effective than either mediumwave AM or FM for reaching local audiences. There are thousands of such stations throughout the Third World which broadcast programs generally intended for a local audience, but which can be heard up to thousands of kilometers away on good world-band radios. The

locations of the stations, the unusual music and unique programming make for some truly exotic listening.

Generally speaking, a good rule to note is that higher frequencies are easier to receive during hours of daylight, especially during the spring, summer and fall. The lower frequencies are usually better during hours of darkness, notably during the winter. One thing you'll notice is that when the higher frequencies are unusable, more stations will crowd into the lower ones, making interference a problem.

Some stations, looking for interference-free channels, broadcast — as you'll see when perusing your RDI — outside the prescribed shortwave bands. For example, the BBC can be heard on 9410 kHz, below the present 31 meter band which starts at 9500 kHz, and on 15070, below the 19 meter band that commences at 15100 kHz. Some stations particularly active in out-of-band broadcasting include Radio Moscow, the Voice of America, Radio Beijing, Radio Nederland and Radio Tirana.

In between the shortwave bands, along with a handful of illegal clandestine broadcasters, are other radio services — "utility" stations — such as ships at sea, traffic with aircraft, and communications between embassies and diplomatic missions. Also, of course, there are radio amateurs and CBers. Unlike most broadcast stations, however, many of these services use a system called single

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sideband, or SSB. This is a way of imposing a speech signal on a radio wave that is more efficient than ordinary radio. If you hear an SSB signal on a conventional radio, it sounds a bit like Donald Duck. The only way to make sense of the transmission is to use a radio equipped to receive SSB signals.

Keeping Abreast of World-Radio Developments

There are many other aspects of shortwave listening you may want to become involved in. There are a number of good clubs in which members report the stations they have recently heard. And there are even programs on the world radio bands to help you through this maze of frequencies.

The longest running program of this type is "Sweden Calling DXers" ("DXers" being a term describing those who are interested in seeking out weak, distant signals), broadcast on Radio Sweden International. The program first went on the air in 1948, edited by "Mr. DX," Arne Skoog. Like the clubs, it is made up mostly of information sent in by listeners. Each month some 50 to 80 people write in with news about what they've been hearing. And each contributor goes on the mailing list for one year to receive the English scripts of the program, sent out free of charge (for more information write to

Sweden Calling DXers, Radio Sweden International, S-105 10 Stockholm, Sweden. Other excellent shortwave programs include "Media Network" on Radio Netherlands and "Shortwave Listener's Digest" on Radio Canada International. For those interested in the technical side of shortwave listening, try tuning in Swiss Radio International and the popular "Swiss Shortwave Merry-go-Round."

No matter what your reason for listening to shortwave — be it an in-depth view of world news, a glimpse of some culture far away, or as a pasttime — you're sure to find it a fascinating and informative use of your time. Without a doubt, world radio is your round-trip ticket to the world!

George Wood grew up around Berkley, California in the 1950s, discovering world radio at the ripe age of ten. Visiting Sweden first as an exchange student and later as a draft resister and finally, in 1975, for research at Radio Sweden International, he never got around to returning to the States. Today, he hosts "Sweden Calling DXers" over Radio Sweden International and acts as a CBS News correspondent from Stockholm. He lives in a small apartment near Broadcasting House and continues to seek the answer to the Cosmic Question of Life.

IF YOU ARE INTO SHORTWAVE YOU SHOULD BE INTO EDXC

The European DX Council is the association of shortwave listeners and DXers in Europe with more than 30 member and observer clubs spread throughout the world. Among our many services to clubs and individuals, the EDXC offers various DX publications including a Land List adopted by many DX clubs all over the world, a Reporting Guide instructing how to write reception reports, a monthly journal and others besides.

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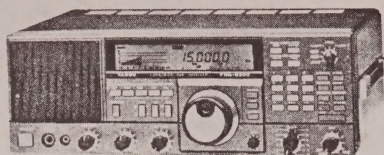
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FRG-9600 SSB coverage: 60 to 460 MHz.

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150 KHz-30MHz

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The FRG-7700 was a great receiver. Now the new generation FRG-8800 takes you a step forward.

- CAT computer compatible
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- Dual 24 hour clock timer recorder control
- Optional FRV8800 VHF converter 118-174 MHz
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- Green LCD display
- 150 KHz to 30 MHz

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- Plus there's much more, including a 24-hour clock, multiplexed output, signal strength graph, and an AC power adapter (included.)
- CAT computer compatible.



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Frequency (kHz)	Country / Station / Location	World Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2260	INDONESIA +R REP INDONESIA Purwokerto, Jawa R REP INDONESIA Purwokerto, Jawa													1kW:DS						Irr:1kW:DS						
2300	KOREA (DPR) YANGGANG PROV SVC Hyesan													DS												
2310	AUSTRALIA AUSTRALIAN BC CORP Alice Springs BRAZIL RADIO PROGRESSO Souza CHINA (PR) YUNNAN PEOPLES BS Kunming													50kW:DS-ENGLISH, ETC						F:50kW:DS-ENGLISH, ETC						
														0.25kW:DS												
														15kW DS-2B												
2325	AUSTRALIA AUSTRALIAN BC CORP Tennant Creek													50kW:DS-ENGLISH, ETC						F:50kW:DS-ENGLISH, ETC						
2332	INDONESIA R REP INDONESIA Jakarta, Jawa													Irr:5kW:DS												
2340	BRAZIL RADIO DIFUSORA Itacoatiara CHINA (PR) FUJIAN PEOPLES BS Fuzhou													1kW:DS												
														10kW:DS-1/TAIWAN SVC												
2350	INDONESIA R REP INDONESIA Yogyakarta, Jawa													1kW:DS												
														Irr:1kW:DS												
														Su:1kW:DS												
																				Su/M:1kW:DS						
2360	GUATEMALA R MAYA DE BARILLAS Huehuetenango													DS-SPANISH, ETC												
2367	INDONESIA UNIDENTIFIED													DS												
2375v	INDONESIA R REP INDONESIA Surabaya, Jawa													1kW:DS												
2376	PAPUA NEW GUINEA RADIO SIMBU Kundiawa													2kW:DS												
2380	BRAZIL RADIO EDUCADORA Limeira FALKLAND ISLANDS FALKLAND IS BC STN Stanley													0.25kW:DS												
														Irr:0.25kW:DS												
														(J):1/3.5kW:USB:DS												
														(J)M-Sa:1/3.5kW:USB:DS												
														(J)Tu-Su:1/3.5kW:USB:DS												
2390	GUATEMALA LA VOZ DE ATITLAN Santiago Atitlán INDONESIA R REP INDONESIA Cirebon, Jawa MEXICO RADIO HUAYACOCOTLA Huayacocotla													1kW:DS-SPANISH, ETC												
																				Su:1kW:DS-SPANISH, ETC						
														1kW:DS												
														0.5kW:DS												
2409	BRAZIL R TRANSAMAZONICA Senador Guimard													1kW:DS												
																				Sa/Su:1kW:DS						
2410	PAPUA NEW GUINEA RADIO ENGA Wabag													2kW:DS-ENGLISH, ETC												
2418	INDONESIA UNIDENTIFIED													DS												

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2420 - 2696 kHz		42		WORLDSCAN																																
Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target										World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
2420	BRAZIL RADIO SAO CARLOS São Carlos													0.5kW:DS																						
2430	CHINA (PR) VO THE STRAIT-PLA Fuzhou														10kW:TAIWAN-2																					
2432.5	INDONESIA R REP INDONESIA Banda Aceh, Sumat'a													50kW:DS																						
2439.5	INDONESIA R REP INDONESIA Surakarta, Jawa													1kW:DS																						
2445	CHINA (PR) JIANGXI PEOPLES BS Nanchang													10kW:DS																						
2455.8	INDONESIA R REP INDONESIA Dili, Timor													Irr::0.3kW:DS																						
2460	BRAZIL +PROGRESSO DO ACRE Rio Branco CHINA (PR) YUNNAN PEOPLES BS Kunming													1kW:DS/PROJECTED																						
														15kW:DS-CHINESE																						
														Su:15kW:DS-CHINESE																						
2464v	INDONESIA RPD PURWAKARTA Purwakarta, Jawa													Irr::0.25kW:DS																						
2467	INDONESIA RPD BLITAR Blitar, Jawa													Irr::0.5kW:DS-2																						
2470	BRAZIL RADIO CACIQUE Sorocaba													Irr::1kW:DS																						
2472	INDONESIA R REP INDONESIA Purwokerto, Jawa																			1kW:DS																
2475	CHINA (PR) ZHEJIANG PBS Hangzhou INDONESIA R ANGKATAN BERSE'A Jakarta, Jawa													10kW:DS-CHINESE																						
														Irr::0.5kW:DS																						
2485	AUSTRALIA AUSTRALIAN BC CORP Katherine														50kW:DS																					
2490	BRAZIL RADIO 8 SETEMBRO Descalvado CHINA (PR) VO THE STRAIT-PLA Fuzhou INDONESIA R REP INDONESIA Semarang, Jawa R REP INDONESIA Ujung Pandang, Su'i													0.25kW:DS																						
														1kW:DS																						
																				0.5kW:DS																
2492	INDONESIA R REP INDONESIA Mataram, Lombok													DS																						
2495v	MADAGASCAR RADIO MADAGASIKARA Antananarivo																																			
2560	CHINA (PR) CENTRAL PEOPLES BS Urumqi XINJIANG PBS Urumqi													15kW:DS-MINORITIES																						
														15kW:DS-UGHUR																						
2582	INDONESIA RPD TENGAH SELATAN Soë, Timor																			0.3kW:DS-2																
2600	CHINA (PR) VO THE STRAIT-PLA Fuzhou														50kW:TAIWAN-2																					
2624	INDONESIA +RPD BLORA Blora, Jawa													0.3kW:DS-2																						
2670v	KOREA (DPR) NORTH HWANGHAE PS Sariwôn													DS																						
2695v	INDONESIA R REP INDONESIA Ende, Flores													0.5kW:DS																						
2696	KOREA (DPR) NORTH HAMGYONG PS Ch'ôngjin													Irr::DS																						

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SUMMER ONLY (J) WINTER ONLY (D) JAMMING  or / or \ EARLIEST HEARD  LATEST HEARD  + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3215 (con'd)	SOUTH AFRICA SOUTH AFRICAN BC Meyerton																									
3216v	VENEZUELA ONDAS PANAMERICANA El Vigía																									
3220	CHINA (PR) CENTRAL PEOPLES BS																									
	ECUADOR HCJB-VO THE ANDES Quito																									
	PAPUA NEW GUINEA RADIO MOROBE Lae																									
3220.5	KOREA (DPR) UNIDENTIFIED																									
3222	TOGO RADIO KARA Lama-Kara																									
3223	INDIA ALL INDIA RADIO Simla																									
3223v	INDONESIA R REP INDONESIA Mataram, Lombok																									
3225	BRAZIL LINS RADIO CLUBE Lins																									
	INDONESIA R REP INDONESIA Tanjungpinang, Sum																									
3225v	VENEZUELA RADIO OCCIDENTE Tovar																									
3229.3	PERU R SOL DE LOS ANDES Juliaca																									
3230	LIBERIA RADIO ELWA Monrovia																									
	NEPAL RADIO NEPAL Harriharpur																									
	SOUTH AFRICA RADIO RSA Meyerton																									
3230v	CLANDESTINE (ASIA) 'VO AFGHANISTAN' Pakistan																									
3231.8	INDONESIA R REP INDONESIA Bukittinggi, Sumat'a																									
3232	MADAGASCAR +R MADAGASIKARA Antananarivo																									
3232.2	CONGO RTV CONGOLAISE Brazzaville																									
3235	BRAZIL RADIO CLUBE Marilia																									
	INDIA ALL INDIA RADIO Gauhati																									
	PAPUA NEW GUINEA R WEST NEW BRITAIN Kimbe																									
3239.6	PERU RADIO AMERICA Lima																									

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

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Frequency
(kHz)

Country / Station / Location

World Time

Power (kW): Network: Target

World Time

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3240	GHANA GHANA BC CORP Accra SWAZILAND TRANS WORLD RADIO Manzini																									
3240v	ECUADOR R ANTENA LIBRE Esmeraldas																									
3240.5	INDONESIA R REP INDONESIA Ambon, Maluku																									
3241	INDONESIA R REP INDONESIA Sibolga, Sumatera																									
3245	BRAZIL RADIO CLUBE Varginha PAPUA NEW GUINEA RADIO GULF Kerema																									
3249.5	HONDURAS RADIO LUZ Y VIDA Santa Bárbara																									
3249.8	INDONESIA R REP INDONESIA Banjarmasin, Kali'n																									
3250	PERU RADIO QOLLYASUYO Juliaca SOUTH AFRICA SOUTH AFRICAN BC Meyerton																									
3253v	VENEZUELA RADIO 980 El Tigre																									
3255	BRAZIL R EDUCADORA CARIRI Crato LIBERIA LIBERIAN BC SYSTEM Monrovia																									
3259	JAPAN NIPPON HOSO KYOKAI Sendai-Haramachi																									
3259.7	INDONESIA R REP INDONESIA Kupang, Timor																									
3260	CHINA (PR) GUIZHOU PEOPLES BS Guiyang NIGER ORT DU NIGER Niamey PAPUA NEW GUINEA RADIO MADANG Madang PERU LA VOZ DE OXAPAMPA Oxapampa																									
3260.7	ECUADOR LV DE RIO CARRIZAL Calceta																									
3264.8	INDONESIA R REP INDONESIA Bengkulu, Sumatera																									
3265	INDONESIA R REP INDONESIA Gorontalo, Sulawesi																									
3268	INDIA ALL INDIA RADIO Kohima																									
(con'd)																										

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LATEST HEARD

+ TENTATIVE

Frequency
(kHz)

Country / Station / Location

World Time

Power (kW): Network: Target

World Time

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3268 (con'd)	INDIA ALL INDIA RADIO Kohima																									
3270	CHINA (PR) RADIO BEIJING Beijing																									
	NAMIBIA R SOUTHWEST AFRICA Windhoek																									
3275	BRAZIL RADIO DIFUSORA Cáceres																									
	PAPUA NEW GUINEA R SOUTH HIGHLANDS Mendi																									
	SWAZILAND TRANS WORLD RADIO Manzini																									
	VENEZUELA RADIO MARA Maracaibo																									
3277	INDIA RADIO KASHMIR Srinagar																									
3277v	INDONESIA R REP INDONESIA Jakarta, Jawa																									
3280	PERU +RADIO HUARI Huari																									
3280v	ECUADOR LA VOZ DEL NAPO Tena																									
3285	BELIZE RADIO BELIZE Belmopan																									
	BRAZIL RADIO BANDEIRANTES Cachoeira Paulista																									
3286	INDONESIA R REP INDONESIA Madiun, Jawa																									
3286v	ECUADOR RADIO RIO TARQUI Cuenca																									
3288v	MADAGASCAR R MADAGASIKARA Antananarivo																									
3289.7	ECUADOR R PANAMERICANA Quero																									
3289.8	ZAMBIA RADIO ZAMBIA Lusaka																									
3290	CHINA (PR) CENTRAL PEOPLES BS																									
	PAPUA NEW GUINEA RADIO CENTRAL Port Moresby																									
	PERU RADIO TAYABAMBA Tayabamba																									
	TRISTAN DA CUNHA TRISTAN BC SERVICE Edinburgh																									
3291v	INDONESIA +RPDT KOTAMADYA Pematangsiantar																									
3295	INDIA ALL INDIA RADIO Delhi																									
(con'd)																										

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ENGLISH

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		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3295 (con'd)	NAMIBIA R SOUTHWEST AFRICA Windhoek													100kW:DS-2/ENG, GER, ETC												
3300	BURUNDI LA VOIX DE LA REV Bujumbura													25kW:DS												
														25kW:DS-FRENCH, ETC												
														Su:25kW:DS-FRENCH, ETC												
	CHINA (PR) VO THE STRAIT-PLA Fuzhou													10kW:TAIWAN-2												
	GUATEMALA RADIO CULTURAL Guatemala City													10kW:DS												
		M:10kW:DS																								
														M-Sa:10kW:DS												
														Su:10kW:DS												
	INDONESIA RPD LAMPUNG UTARA Kotabumi, Sumatera	Tu-Su:10kW:DS																								
														0.3kW:DS												
3305	INDIA ALL INDIA RADIO Ranchi													2kW:DS-ENGLISH, ETC												
														Irr::2kW:DS-ENGLISH, ETC												
	PAPUA NEW GUINEA RADIO WESTERN Daru													10kW:DS-ENGLISH, ETC												
3305.7	ZIMBABWE ZIMBABWE BC CORP Gweru													Irr::10/100kW:DS-ENGLISH, ETC												
														Irr::Sa:10/100kW:DS-ENGLISH, ETC												
3306	INDONESIA R REP INDONESIA Dili, Timur													10kW:DS												
3310	CHINA (PR) JILIN PEOPLES BS Changchun													10kW:DS												
	PERU RADIO BAGUA Bagua													1kW:DS												
3310.3	BOLIVIA RADIO SAN MIGUEL Riberalta													0.5kW:DS												
		Su:0.5kW:DS																								
		Irr::Su:0.5kW:DS																								
3315	INDIA ALL INDIA RADIO Bhopal	Irr::10kW:DS-ENGLISH, ETC																								
														10kW:DS-ENGLISH, ETC												
	PAPUA NEW GUINEA RADIO MANUS Lorengau													2kW:DS-ENGLISH, ETC												
3316.2	ECUADOR RADIO PASTAZA Puyo													2.5kW:DS												
														M-Sa:2.5kW												
3320	KOREA (DPR) RADIO PYONGYANG Pyongyang													EAS												
	SOUTH AFRICA SOUTH AFRICAN BC Meyerton													100kW:RADIO SUID-APRIKA												
3323v	ECUADOR RADIO CHANGAY Macas													DS												
3324.8	GUATEMALA R MAYA DE BARILLAS Huehuetenango													1kW:DS-SPANISH, ETC												
3325	BRAZIL RDIF UNIVERSITARIA Guarulhos													1kW:DS												
	INDONESIA R REP INDONESIA Palangkaraya, Kali'n													10kW:DS												
	PAPUA NEW GUINEA R NORTH SOLOMONS Kieta													10kW:DS												

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Frequency (kHz)	Country / Station / Location	World Time												World Time											
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3325v	ECUADOR ONDAS QUEVEDENAS Quevedo	Irr::1.5kW:DS																							
3325.6	BRAZIL RADIO LIBERAL Belém	5kW:DS																							
3326	NIGERIA RADIO NIGERIA Lagos	50kW:DS-1/ENGLISH, ETC																							
3329.5	INDONESIA RPD SUKABUMI Sukabumi, Jawa	1kW:DS-2																							
3329.6	PERU ONDAS DEL HUALLAGA Huánuco	Alternative Frequency to 3330.4kHz																							
3330	RWANDA R REP RWANDAISE Kigali	5/50kW:DS Sa/Su:5/50kW:DS Su:5/50kW:DS																							
3330.4	PERU ONDAS DEL HUALLAGA Huánuco	Alt 3329.6kHz:0.5kW:DS Alt 3329.6kHz:Su:0.5kW:DS																							
3331v	COMOROS RADIO COMORO Moroni	4kW:DS-FRENCH, ETC																							
3335	BRAZIL RADIO ALVORADA Londrina CHINA (TAIWAN) CENTRAL BC SYSTEM Taipei PAPUA NEW GUINEA RADIO EAST SEPIK Wewak SWAZILAND TRANS WORLD RADIO Manzini	5kW:DS Tu-Su:5kW:DS 10kW:PRC-5 10kW:DS 25kW::SAP (J):25kW::SAP (J)Sa:25kW::SAP																							
3338v	MOZAMBIQUE RADIO MOCAMBIQUE Maputo	Irr::10kW:DS-PORTUGUESE, ETC																							
3339	TANZANIA RADIO TANZANIA Zanzibar-Marhubi	10kW:DS																							
3340v	BOLIVIA RADIO VILOCO Viloco	1kW:DS-SPANISH, ETC Irr:Su/M:1kW:DS-SPANISH, ETC																							
3344.8	INDONESIA R REP INDONESIA Ternate, Maluku	10kW:DS																							
3345	INDIA RADIO KASHMIR Jammu INDONESIA R REP INDONESIA Pontianak, Kalim'n PAPUA NEW GUINEA RADIO NORTHERN Popondetta	2kW:DS-ENGLISH, ETC Irr::5kW:DS 2kW:DS-ENGLISH, ETC																							
3346	ZAMBIA RADIO ZAMBIA-ZES Lusaka	50/120kW:DS-ENGLISH, ETC P/Sa:50/120kW:DS-ENGLISH, ETC																							
3346v	ANGOLA ER DO HUAMBO Huambo	Irr::10kW:DS																							
3349.4	BOLIVIA RADIO 27 DICIEMBRE Villa Montes	1kW:DS Irr::1kW:DS Tu-Su:1kW:DS Irr:Tu-Su:1kW:DS																							

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Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3350	KOREA (DPR) SOUTH PYONGYANG PS Pyongsong													DS												
3354.7	ANGOLA R NAC DE ANGOLA Luanda													10kW:DS-A/INACTIVE												
3355	INDIA ALL INDIA RADIO Kurseong													20kW:DS-ENGLISH, ETC												
	NEW CALEDONIA RFO-N CALEDONIE Nouméa													Irr::20kW:DS-ENGLISH, ETC												
														20kW:DS												
														M-Sa:20kW:DS												
3355v	INDONESIA R REP INDONESIA Jambi, Sumatera													7.5kW:DS												
3356	BOTSWANA RADIO BOTSWANA Gaborone													50kW:DS-ENGLISH, ETC												
3360	CHINA (PR) CENTRAL PEOPLES BS													TAIWAN-2												
	GUATEMALA LA VOZ DE NAHUALA Nahualá													0.5/1kW:DS-SPANISH, ETC												
	PAPUA NEW GUINEA RADIO MILNE BAY Alotau													Su:0.5/1kW:DS-SPANISH, ETC												
														10kW:DS-ENGLISH, ETC												
3365	BRAZIL RADIO CULTURA Araraquara													1kW:DS												
	INDIA ALL INDIA RADIO Delhi													10kW:DS-ENGLISH, ETC												
3366	GHANA GHANA BC CORP Accra													50kW:DS-2												
3367v	BOLIVIA RADIO 16 DE MARZO Bolívar, Oruro													Irr::DS												
3370	BOLIVIA RADIO FLORIDA Samaipata														1kW:DS											
															Su:1kW:DS											
	GUATEMALA RADIO TEZUTULAN Cobán													1/5kW:DS												
3370v	MADAGASCAR R MADAGASAKIRA Antananarivo														DS											
3375	BRAZIL RADIO DOURADOS Dourados													5kW:DS												
														M-Sa:5kW:DS												
	RADIO EDUCADORA Guajará Mirim														5kW:DS											
	RADIO EQUATORIAL Macapá														1kW:DS											
	RADIO NACIONAL S Gabriel Cachoeira														5kW:DS											
	INDIA ALL INDIA RADIO Gauhati													10kW:DS-A/ENGLISH, ETC												
	INDONESIA R REP INDONESIA Medan, Sumatera													7.5kW:DS												
	PAPUA NEW GUINEA R WESTERN HIGHLAND Mount Hagen														2kW:DS											
3377.5	JAPAN NIPPON HOSO KYOKAI Osaka-Mihara													Irr::0.3kW:DS-2(PFEEDER)												
3378	AUSTRIA SCHULUNGSENDER Vienna													M-F:10kW:DS-ARMY TRAINING												
3380	GUATEMALA RADIO CHORTIS Jocotán													1kW:DS												
(con'd)	MALAWI MALAWI BC CORP Limbe													100kW:DS-ENGLISH, ETC												

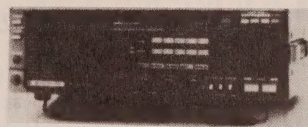
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
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 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or EARLIEST HEARD LATEST HEARD + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																							
3380 (con'd)	MALAWI MALAWI BC CORP Limbe MALI RTV MALIENNE Bamako											(J):100kW:DS-ENGLISH, ETC													
3381	ECUADOR RADIO IRIS Esmeraldas												10kW:DS												
3381v	INDONESIA R REP INDONESIA Malang, Jawa																								
3385	BRAZIL R EDUCACAO RURAL Tefé RADIO CONGONHAS Congonhas FRENCH GUIANA RFO-GUYANE Cayenne INDONESIA R REP INDONESIA Kupang, Timor PAPUA NEW GUINEA R EAST NEW BRITAIN Rabaul												1kW:DS												
3390	PERU LA VOZ DE CUTERVO Cuterbo ZAIRE RADIO CANDIP Bunia																								
3390.2	BOLIVIA RADIO CAMARGO Camargo																								
3395	BHUTAN BHUTAN BC SERVICE Thimbu PAPUA NEW GUINEA EASTERN HIGHLANDS Goroka																								
3395v	ECUADOR RADIO ZARACAY Santo Domingo INDONESIA R REP INDONESIA Tanjungkarang, Sum																								
3395.7	ZIMBABWE ZIMBABWE BC CORP Gweru																								
3398.7	INDONESIA R REP INDONESIA Singaraja, Bali																								
3400	CHINA (PR) VO THE STRAIT-PLA Fuzhou ICELAND RIKISUTVARPID Reykjavik																								
3425v	INDONESIA +RPD INDRAGIRI HILI Tembilahan, Sumat'a																								
3450v	BRAZIL EDUCADORA 6 AGOSTO Xapuri																								

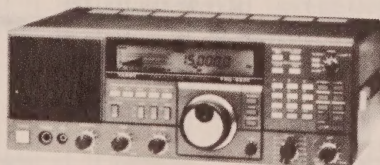
Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time											
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
3450v (con'd)	BRAZIL EDUCADORA 6 AGOSTO Xapuri	Tu-Su:2kW:DS																																			
3452	INDONESIA RPD KOTA BARU Kota Baru, Kalim'n													Irr::DS-2																							
3458v	INDONESIA RPD LEBAK Lebak, Jawa													0.35kW:DS-2																							
3460v	INDONESIA RPD ACEH TIMUR Langsa, Sumatera													DS-2																							
3478v	INDONESIA RPD KETAPANG Ketapang, Kalim'n													0.5kW:DS-2																							
3480v	BOLIVIA RADIO PADILLA Padilla	Irr::0.5kW:DS/INACTIVE												0.5kW:DS/INACTIVE																							
3510v	CLANDESTINE (M EAST) VO THE CRUSADER Near Iran													MOJAHEDIN-E KHALQ:ME																							
3535	CHINA (PR) VO THE STRAIT-PLA Fuzhou													10kW:TAIWAN-1																							
3569v	BRAZIL RADIO 3 DE JULHO Brasileia	Irr:0.25kW:DS												0.25kW:DS																							
3579	INDONESIA RPD ASAHAN Kisaran, Sumatera													0.8kW:DS-2																							
														Irr:0.8kW:DS-2																							
3607.5 (con'd)	JAPAN NIPPON HOSO KYOKAI Hiroshima-Gion													Irr:0.6kW:DS-1(FEEDER)																							

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DAN'S GOT IT ALL!



KENWOOD R-2000



YAESU FRG-8800



ICOM-R71A

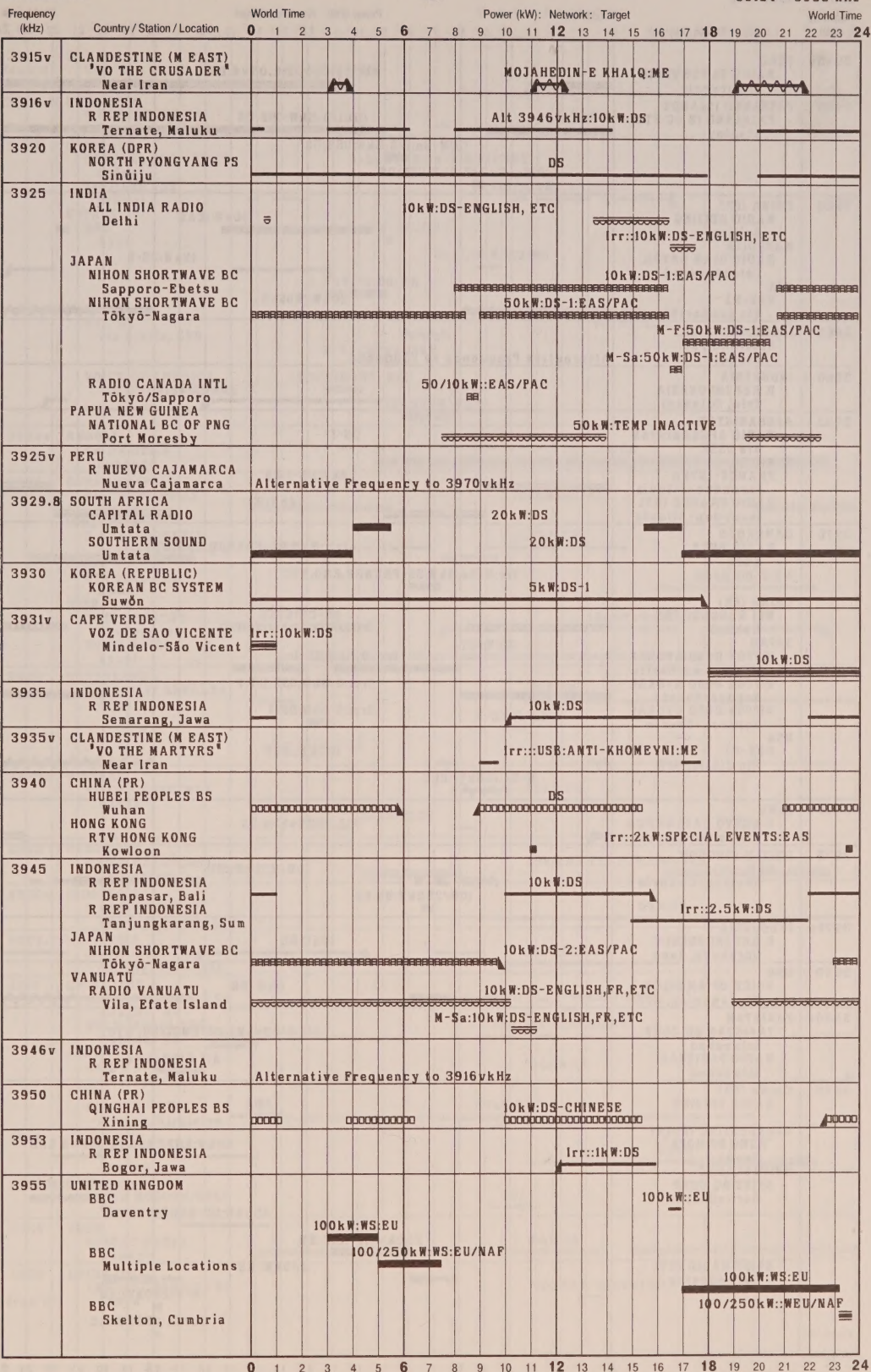
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Frequency (kHz)	Country / Station / Location	World Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3607.5 (con'd)	JAPAN NIPPON HOSO KYOKAI Tôkyô-Shôbu													Irr::0.9kW:USB:DS-1(FEEDER)												
3640	CHINA (PR) VO THE STRAIT-PLA Fuzhou																				10kW:TAIWAN-1					
3725v	CLANDESTINE (C AMER) "RADIO VENCEREMOS" Morazán, Salvador																									
3726v	CLANDESTINE (AFRICA) "VO BROAD MASSES" Argadom, Ethiopia "VO THE TIGRE REV" Argadom, Ethiopia																									
3775	INDONESIA RPD SUMBAWA Sumbawa Besar																									
3778v	IRAN VO THE ISLAMIC REP Tehrân																									
3802v	INDONESIA R REP INDONESIA Gorontalo, Sulawesi																									
3815	CHINA (PR) CHINESE PEOPLES BS																									
3818v	INDONESIA RPD LABUHANBATU Rantauprapat, Sum'a																									
3825v	PIRATE (S AMERICA) "RADIO CULTURAL" Barbacoas, Colombia																									
3870v	CLANDESTINE (M EAST) "VO COMMUNIST IRAN" Afghanistan (tent) "VO IRANIAN REV" Afghanistan (tent)																									
3875v	INDONESIA RPD TAPANULI UTARA Balige, Sumatera																									
3885	BOLIVIA RADIO LIBERTAD Entre Rios																									
3900	CHINA (PR) +NEI MONGGOL PBS Hailar VO THE STRAIT-PLA Fuzhou																									
3904.8	INDONESIA R REP INDONESIA Banda Aceh, Sumat'a																									
3905	INDIA ALL INDIA RADIO Delhi																									
	INDONESIA R REP INDONESIA Merauke, IrianJaya PAPUA NEW GUINEA RADIO NEW IRELAND Kavieng																									
3910	USA AFRTS-US MILITARY Via Tôkyô, Japan																									
3910v	PERU RADIO EL PORVENIR El Porvenir																									
3915	UNITED KINGDOM BBC Via Singapore																									

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ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ٠٠٠٠ RUSSIAN / РУССКИЙ — CHINESE / 中 文 — JAPANESE / 日 本 語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE



Frequency (kHz)	Country / Station / Location	World Time	Power (kW): Network: Target	World Time
		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		
3955v	PERU RADIO EL PORVENIR El Porvenir		Alt 3910v kHz: 0.05 kW: DS	
3958	FALKLAND ISLANDS FALKLAND IS BC STN Stanley		(D) 1/3.5 kW: USB: DS (D) M-Sa: 1/3.5 kW: USB: DS (D) Tu-Su: 1/3.5 kW: USB: DS	
3960	CHINA (PR) RADIO BEIJING Beijing MONGOLIA RADIO ULAN BATOR Dalandzadgad USA RFE-RL Via Lamerph'm, GFR		10 kW: EAS 12 kW: DS-1 20 kW: WUSSR	
3960v	CHINA (PR) XINJIANG PBS Urumqi		Alternative Frequency to 7385v kHz	
3960.2	INDONESIA R REP INDONESIA Palu, Sulawesi		10 kW: DS	
3965	AFGHANISTAN RADIO AFGHANISTAN Via USSR FRANCE FRANCE-INTER Issoudun-Allouis RADIO FRANCE INTL Issoudun-Allouis		DS-1 4 kW: DS-1: EU 4 kW: EU	
3970	CAMEROON RADIO BUEA Buea CHINA (PR) NEI MONGGOL PBS Hohhot JAPAN NIPPON HOSO KYOKAI Matsuyama-Harita NIPPON HOSO KYOKAI Nagoya-Nabeta NIPPON HOSO KYOKAI Sapporo-Ebetsu USA RFE-RL Via Biblis, GFR		Irr: 8 kW: DS-FRENCH, ENG, ETC Irr: M-Sa: 8 kW: DS-FRENCH, ENG, ETC DS-CHINESE Irr: 0.6 kW: DS-1 Irr: 0.3 kW: USB: DS-1 Irr: 0.6 kW: DS-1 100 kW: EEU M-Sa: 100 kW: EEU	
3970v	PERU R NUEVO CAJAMARCA Nueva Cajamarca		Alt 3925v kHz: DS	
3975	UNITED KINGDOM BBC Skelton, Cumbria		100/250 kW: EU 100/250 kW: WS: EU	
3976v	INDONESIA R REP INDONESIA Surabaya, Jawa		10 kW: DS	
3980	USA VOICE OF AMERICA Via Ismaning, GFR		8 kW: EU	
3980v	PAKISTAN PAKISTAN BC CORP Islamabad RADIO PAKISTAN Islamabad		Alt 5103v kHz: DS-ENGLISH, ETC Alt 5103v kHz	
3985	CHINA (PR) RADIO BEIJING CLANDESTINE (ASIA) ECHO OF HOPE Suwon SWITZERLAND SWISS BC CORP Beromünster SWISS RADIO INTL Beromünster		SEA 50 kW: KOREANS IN JAPAN: EAS 250 kW: DS-DRS: EU 250 kW: DS-RSI: EU 250 kW: DS-RSR: EU 250 kW: EU M-F: 250 kW: EU Sa/Su: 250 kW: EU	

(con'd)

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 ARABIC / د/ر ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中/文 0000 JAPANESE / 日/文 ■■■ MULTILINGUAL 0000 OTHER ■■■
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
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Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4035 (con'd)	CHINA (PR) RADIO BEIJING Lhasa XIZANG PEOPLES BS Lhasa																									
4040	USSR ARMENIAN RADIO Yerevan RADIO MOSCOW Vladivostok																									
4042	USA APRIS-US MILITARY Via Barford, UK																									
4045	CHINA (PR) VO THE STRAIT-PLA Fuzhou USSR RADIO MOSCOW/RP&P Moscow																									
4050	USSR KIRGHIZ RADIO Frunze RADIO TIKHIY OKEAN Yuzhno-Sakhalinsk SAKHALIN RADIO Yuzhno-Sakhalinsk																									
4060	USSR RADIO MOSCOW/RP&P Ryazan'																									
4065v	CLANDESTINE (M EAST) 'VO IRANIAN KURDS'																									
4080	MONGOLIA RADIO ULAN BATOR Ulan Bator USSR RADIO MOSCOW/RP&P Via Ulan Bator																									
4117v	BRAZIL RADIO DIFUSORA Sena Madureira																									
4119v	CLANDESTINE (ASIA) 'VO NAT SALVATION' Haeju, Korea (DPR)																									
4130	CHINA (PR) RADIO BEIJING Beijing VO THE STRAIT-PLA Fuzhou																									
4190	CHINA (PR) CENTRAL PEOPLES BS																									
4200	CHINA (PR) RADIO BEIJING Beijing																									
4210v	CLANDESTINE (M EAST) 'VO THE CRUSADER' Near Iran																									
4220	CHINA (PR) CENTRAL PEOPLES BS Urūmqi XINJIANG PBS Urūmqi																									

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 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD * TENTATIVE

Frequency
(kHz)

Country / Station / Location

World Time

Power (kW): Network: Target

World Time

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4240	PARAGUAY LA VOZ DE MISIONES San Juan Bautista																									
4250	CHINA (PR) CENTRAL PEOPLES BS CLANDESTINE (M EAST) "VO IRANIAN KURDS"																									
4271	ECUADOR RADIO GONZANAMA Gonzanamá																									
4273.2	KOREA (DPR) CHAGONG PROVINCIAL Kanggye																									
4299.3	PERU RADIO MODERNA Celendin																									
4330	CHINA (PR) CENTRAL PEOPLES BS Urümqi VO THE STRAIT-PLA Fuzhou XINJIANG PBS Urümqi																									
4340	INDONESIA RPD KUTAI Kutai, Kalimantan																									
4380	CHINA (PR) VO THE STRAIT-PLA Fuzhou																									
4395	USSR RADIO MOSCOW Yakutsk																									
4415v	VIETNAM REGIONAL RADIO BS Lam Dong																									
4421v	BOLIVIA RADIOEMISORA REYES Reyes																									
4431v	BOLIVIA RADIOEMISORA REYES Reyes																									
4450	AFGHANISTAN RADIO AFGHANISTAN Via Dushanbé, USSR																									
4458	BOLIVIA LA VOZ DEL TROPICO Villa Tunari																									
4459.7	PERU RADIO NORANDINA Celendin																									
4460	CHINA (PR) CENTRAL PEOPLES BS Beijing																									
4465	USA RFE-RL Via Holzkirchen, GFR																									
4470v	CLANDESTINE (M EAST) "VO COMMUNIST IRAN Afghanistan (tent)																									
4472	BOLIVIA RADIO MOVIMA Santa Ana																									
4475	USA RFE-RL Via Holzkirchen, GFR																									
4485	USSR BASHKIR RADIO																									

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Frequency (kHz)	Country / Station / Location	World Time	Power (kW):	Network:	Target	World Time
		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24				
4485 (con'd)	USSR KAMCHATKA RADIO Petropavlovsk RADIO TIKHIY OKEAN Petropavlovsk		50kW:DS			
			50kW:MARINERS:PAC			
			Sa:50kW:MARINERS:PAC			
			Su:P:50kW:MARINERS:PAC			
4500	CHINA (PR) RADIO BEIJING Urūmqi XINJIANG PBS Urūmqi		50kW:DS-CHINESE			
						D:50kW:EUSSR
4510	USSR UZBEK RADIO Fergana		15kW:DS			
4520	USSR KHANTY-MANSIYSK R Khanty-Mansiysk KORYASK RADIO Palana		50kW:DS			
			Sa/Su:15kW:DS			
			Su:15kW:DS			
			Irr:W/F:15kW:DS			
4525	CHINA (PR) NEI MONGGOL PBS Dongsheng		10kW:DS-MONGOLIAN			
4545	USSR KAZAKH RADIO Alma-Ata		50kW:DS-1			
4556.8	CLANDESTINE (ASIA) VO NAT SALVATION Haeju, Korea (DPR)	100kW:TO KOREA (REP)				
4557v	CLANDESTINE (ASIA) VO NAT SALVATION Haeju, Korea (DPR)		100kW:TO KOREA (REP)			
4565	USA RPE-RL Via Holzkirchen,GFR					
						Irr:10kW:ISL:(FEEDER):WEU
						Irr:10kW:ISU:(FEEDER):WEU
4588	ARGENTINA RADIO RIVADAVIA Buenos Aires	Irr:2.5kW:USB:DS(FEEDER)				
						M-F:2.5kW:USB:DS(FEEDER)
						M-Sa:2.5kW:USB:DS(FEEDER)
						Sa:2.5kW:USB:DS(FEEDER)
			Su:2.5kW:USB:DS(FEEDER)			
4605v	CLANDESTINE (M EAST) VO IRANIAN KURDS					
						ANTI-IRANIAN GOVT:ME
4607v	PERU RADIO AYAVIRI Ayaviri					
			Irr:DS			
4607.4	INDONESIA R REP INDONESIA Serui, Irian Jaya					
						0.25kW:DS
4610	USSR KHABAROVSK RADIO Khabarovsk		50kW:DS			
4620	CHINA (PR) RADIO BEIJING Beijing					
			0kW:EAS			
						Irr:10kW
4635	USSR TAJIK RADIO Dushanbē		50kW:DS-1			
4636.7	BOLIVIA RADIO 23 DE MARZO Tupiza					
						DS
						Irr:DS
4656v	ECUADOR CRE Guayaquil					
						Alternative Frequency to 4766.6kHz
4660v	LAOS LAO NATIONAL RADIO Houa Phan					
			1kW:DS			
						Su:1kW:DS

Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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(kHz)	Country / Station / Location	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4755	BRAZIL R EDUCACAO RURAL Campo Grande																									
	RADIO DO MARANHAO São Luís																									
	HONDURAS RADIO FAMILIA																									
4755v	VIETNAM REGIONAL RADIO BS Son La																									
4756v	VIETNAM REGIONAL RADIO BS Nghe Tinh																									
4760	CHINA (PR) YUNNAN PEOPLES BS Ziyun, Guizhou																									
	LIBERIA RADIO ELWA Monrovia																									
	SWAZILAND TRANS WORLD RADIO Manzini																									
	+TRANS WORLD RADIO Manzini																									
	VENEZUELA RADIO FRONTERA San Antonio																									
4762	VIETNAM UNIDENTIFIED																									
4762v	PERU RADIO INCA Lima																									
4764.2	INDONESIA R REP INDONESIA Medan, Sumatera																									
4765	BOLIVIA RADIO HUANAY Huanay																									
	BRAZIL RADIO NACIONAL Cruzeiro do Sul																									
	RADIO RURAL Santarém																									
4765v	CUBA RADIO MOSCOW Havana																									
4766.6	ECUADOR CRE Guayaquil																									
4770	ANGOLA ER LUNDA NORTE Dundo-Luachimo																									
	CHINA (PR) CENTRAL PEOPLES BS Beijing																									
	NIGERIA RADIO NIGERIA Kaduna																									
	VENEZUELA RADIO MUNDIAL Ciudad Bolívar																									
4770v	VIETNAM VOICE OF VIETNAM Hanoi																									

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ENGLISH

GERMAN / DEUTSCH

FRENCH / FRANÇAIS

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MULTILINGUAL

OTHER

SUMMER ONLY (J)

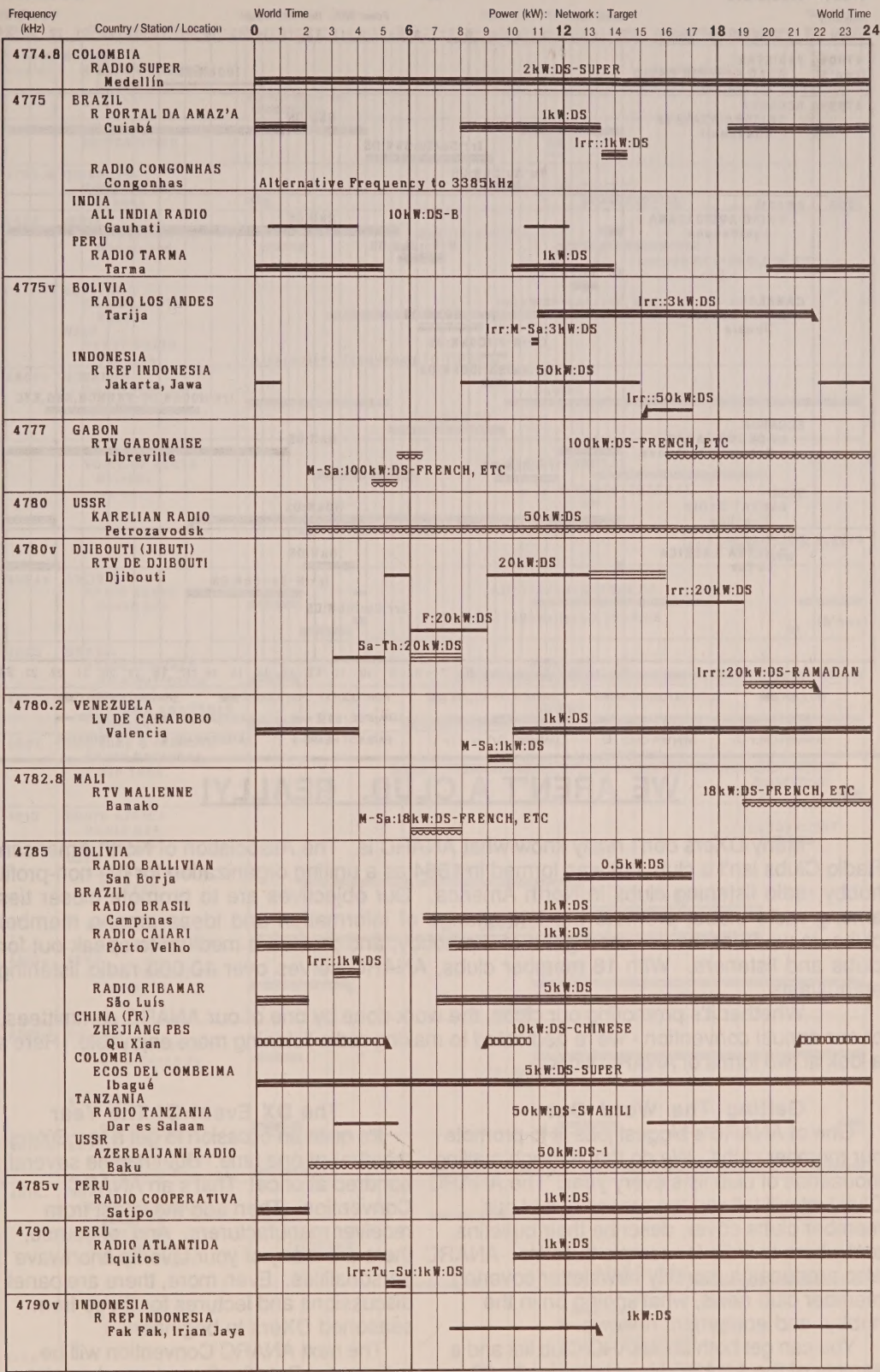
WINTER ONLY (D)

JAMMING / or /

EARLIEST HEARD

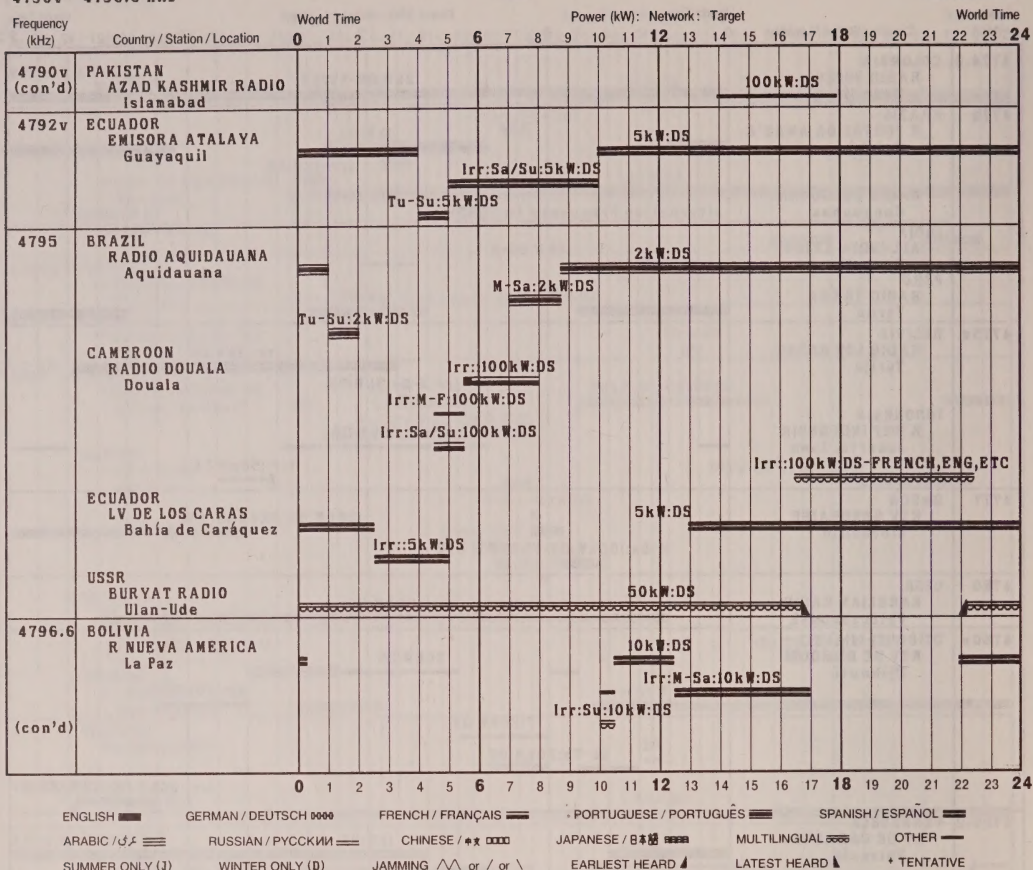
LATEST HEARD

* TENTATIVE



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

ENGLISH ■ GERMAN / DEUTSCH ■■■ FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / اعراب ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 ■■■ JAPANESE / 日本語 ■■■ MULTILINGUAL ■■■ OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE



WE AREN'T A CLUB. REALLY!

Many DXers don't really know what ANARC is. The Association of North American Radio Clubs isn't a club, but was formed in 1964 as a uniting organization for the non-profit hobby radio listening clubs in North America. Our objectives are to promote closer ties among radio clubs, promote the interchange of information and ideas among member clubs, to work for the common good of the hobby, and provide a medium to speak out for clubs and listeners. With 18 member clubs, ANARC serves over 10,000 radio listening enthusiasts.

Whether it's promoting our clubs, the work done by one of our ANARC committees, or our annual convention - we're dedicated to making radio listening more enjoyable. Here's a look at two forms of ANARC work.

Getting The Word Out

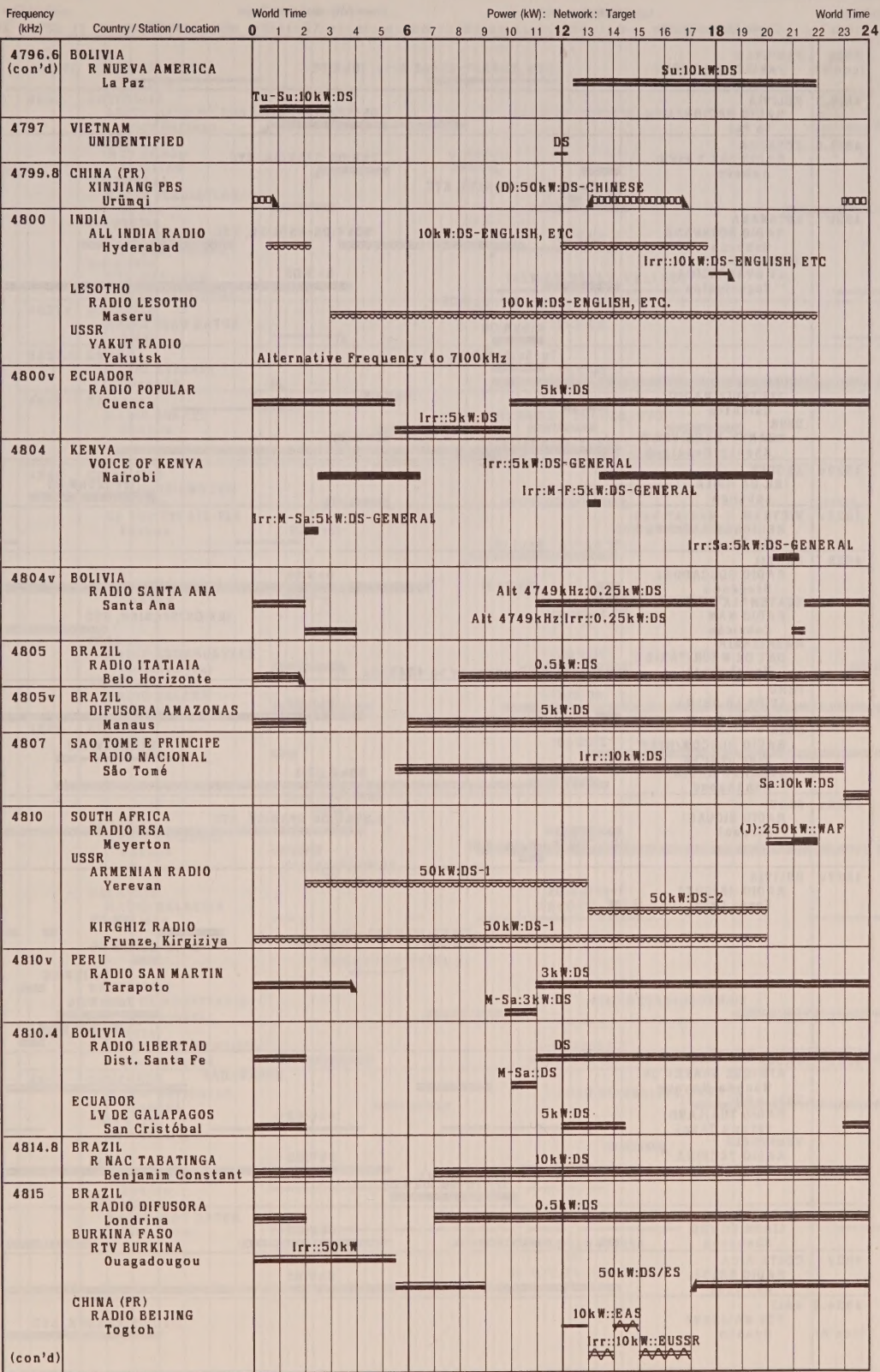
One of ANARC's biggest jobs is to promote our member clubs. We do that through mailing thousands of club lists every year. The ANARC Club List will tell you the areas each of our member clubs cover, describe their bulletins, and where to write for sample bulletins. ANARC also produces a monthly newsletter covering member club news, what's going on in the hobby, and equipment reviews.

You can get both an ANARC Club list and a sample of the ANARC Newsletter for \$1.00 in the US, \$1.25 in Canada, or 6 IRCs anywhere else from ANARC, P.O. Box 462, Northfield, MN 55057.

The DX Event Of The Year

It's quite an occasion to get a few DXers together at one time. But imagine several hundred at once! That's an ANARC Convention. Then add the latest from receiver manufacturers. And, of course, there are many of your favorite shortwave personalities. Even more, there are panel discussions and lectures for those from seasoned DXers to beginners.

The next ANARC Convention will be in Toronto, Ontario, Canada on July 17th - 19th, 1987. Exhibits. Broadcasters. Discussions. And plenty of other DXers. It really is the DXevent of the year!



ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / عَرَبِيّ — RUSSIAN / РУССКИЙ — CHINESE / 中文 — JAPANESE / 日本語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

ENGLISH 	GERMAN / DEUTSCH 	FRENCH / FRANÇAIS 	PORTUGUESE / PORTUGUÊS 	SPANISH / ESPAÑOL 
ARABIC / 	RUSSIAN / РУССКИЙ 	CHINESE / 中文 	JAPANESE / 日本語 	MULTILINGUAL 
SUMMER ONLY (3)	WINTER ONLY (1)	JAMMING  or / or	EARLIEST HEARD 	LATEST HEARD 
				+ TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24												Power (kW): Network: Target World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24											
4834.8 (con'd)	MALI RTV MALIENNE Bamako	Irr:M-Sa::DS-FRENCH, ETC																							
4835	AUSTRALIA AUSTRALIAN BC CORP Alice Springs BRAZIL +RTV ACAUA Teresina GUATEMALA RADIO TEZULUTLAN Cobán INDONESIA R REP INDONESIA Ambon, Maluku MALAYSIA RTM-SARAWAK Kuching-Stapok	50kW:DS-ENGLISH, ETC 0.5kW:DS 2.5/3kW:DS 10kW:DS 10kW:DS-MALAY, MELANEU																							
4837v	MONGOLIA RADIO ULAN BATOR Altai	12kW:DS																							
4837.5	BRAZIL RADIO ATALAIA Corumbá	5kW:DS																							
4839	ZAIRE RADIO BUKAVU Bukavu	Irr:4kW:DS-FRENCH, ETC Irr:Su:4kW:DS-FRENCH, ETC																							
4840	CHINA (PR) HEILONGJIANG PBS Harbin VO THE STRAIT-PLA Fuzhou INDIA ALL INDIA RADIO Bombay PERU RADIO ANDAHUAYLAS Andahuaylas VENEZUELA RADIO VALERA Valera	50kW:DS-CHINESE 10kW:TAIWAN-2 (D):10kW:TAIWAN-2 10kW:DS Irr:10kW:DS 2kW:DS 1kW:DS																							
4845	BOLIVIA RADIO FIDES La Paz BRAZIL RADIO NACIONAL Manaus MALAYSIA RADIO MALAYSIA Kajang MAURITANIA ORT DE MAURITANIE Nouakchott	10kW:DS M-Sa:10kW:DS Tu-Su:10kW:DS 250kW:DS Tu-Sa:250kW:DS 50kW:DS-TAMIL Sa/Su:50kW:DS-TAMIL Su:50kW:DS-TAMIL Alt 4825kHz:100kW:DS																							
4845v	COLOMBIA RADIO BUCARAMANGA Bucaramanga	Irr:1kW:DS																							
4850	CAMEROON RADIO NATIONALE Yaoundé CHINA (PR) UNIDENTIFIED INDIA ALL INDIA RADIO Kohima MONGOLIA RADIO ULAN BATOR Ulan Bator	100kW:DS-ENGLISH, FRENCH 2kW:DS 100kW:DS-1 Tu/F:100kW:EUSSR Sa-M/W/Th:100kW:DS-1																							
(con'd)																									

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ٠٠٠ — RUSSIAN / РУССКИЙ — CHINESE / 中文 — JAPANESE / 日本語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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4850 (con'd)	USSR RADIO MOSCOW/RP&P Via Ulan Bator UZBEK RADIO Tashkent VENEZUELA RADIO CAPITAL Caracas													100kW::EAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

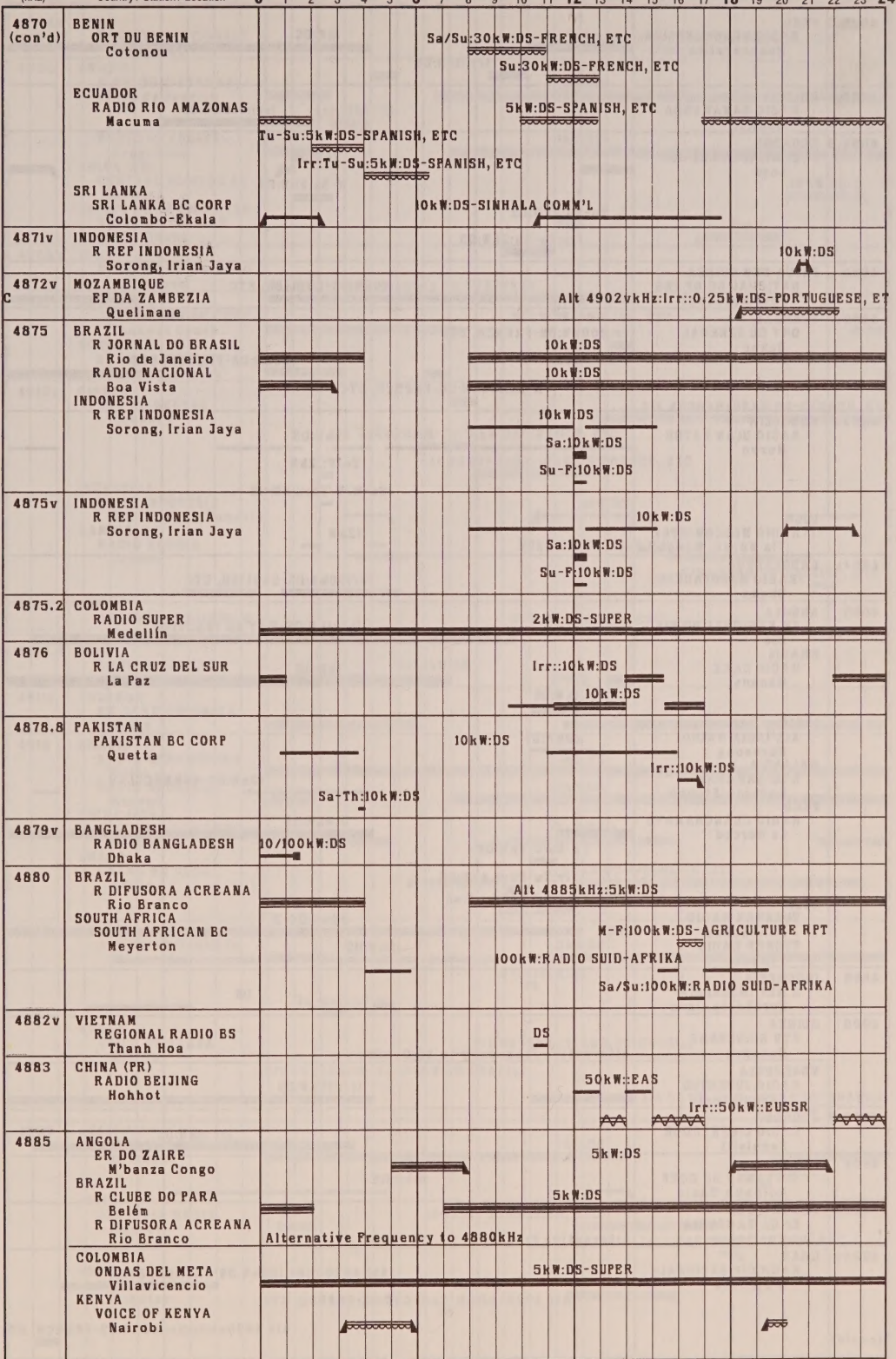
Frequency
(kHz)

Country / Station / Location

World Time

Power (kW): Network: Target

World Time



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																							
4885.3	PERU RADIO HUANCAMELICA Huancavelica																								
4886	BOLIVIA RADIO SARARENDA Camiri																								
4889.8	ECUADOR CENTINELA DEL SUR Loja																								
4890	PAPUA NEW GUINEA NATIONAL BC OF PNG Port Moresby																								
4890v	SENEGAL ORT DU SENEGAL Dakar																								
4893v	MONGOLIA RADIO ULAN BATOR Murun																								
	USSR RADIO MOSCOW/RP&P Via Murun, Mongolia																								
4894v	BANGLADESH +RADIO BANGLADESH Dhaka																								
4895	ANGOLA EM REGIONAL DO BIE Bié																								
	BRAZIL RADIO BARE Manaus																								
	INDIA ALL INDIA RADIO Kurseong																								
	MALAYSIA RTM-SARAWAK Kuching-Stapok																								
	PERU RADIO CHANCHAMAYO La Merced																								
	USSR TURKMEN RADIO Ashkhabad																								
	TYUMEN RADIO Tyumen																								
4899	INDONESIA R REP INDONESIA Surakarta, Jawa																								
4900	GUINEA RTV GUINEENNE Conakry																								
	VENEZUELA RADIO JUVENTUD Barquisimeto																								
4900.6	ECUADOR RADIO LIBERTADOR Squisilí																								
4902	SRI LANKA SRI LANKA BC CORP Colombo-Ekala																								
4902v	MOZAMBIQUE EP DA ZAMBEZIA Quelimane																								
4904v	CHAD RADIO DIF NATIONALE N'djaména																								
(con'd)																									

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC RUSSIAN / РУССКИЙ CHINESE JAPANESE MULTILINGUAL OTHER
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Frequency

World Time

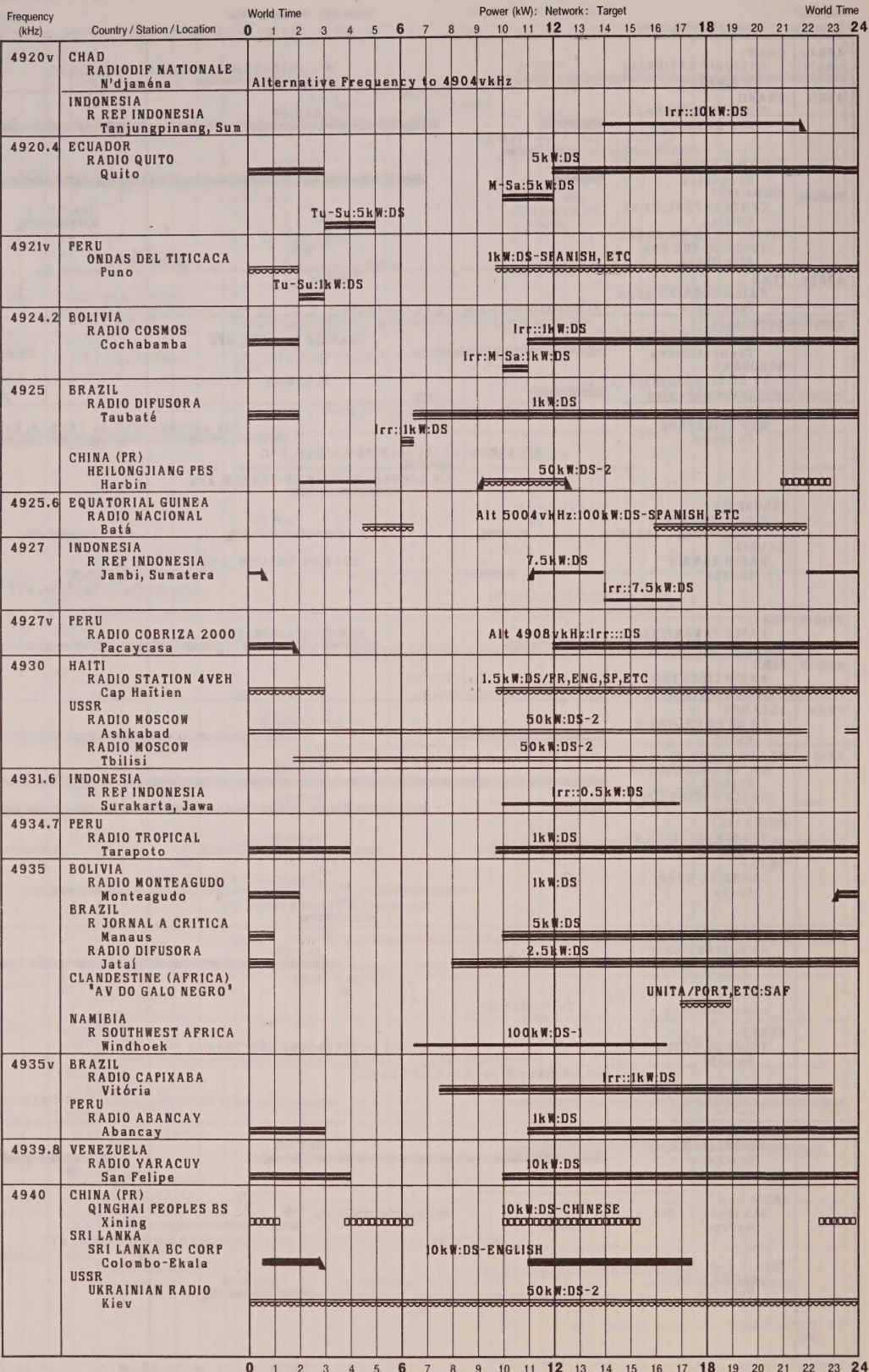
Power (kW): Network: Target

World Time

Frequency (kHz)	Country / Station / Location	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4904 v (con'd)	CHAD RADIO DIP NATIONALE N'djaména																									
4905	BRAZIL R RELOGIO FEDERAL Rio de Janeiro																									
	RADIO ARAGUAIA Araguaína																									
	CHINA (PR) CENTRAL PEOPLES BS Beijing																									
	UNITED ARAB EMIRATES VOICE OF THE UAE Abu Dhabi																									
4908 v	PERU RADIO COBRIZA 2000 Pacaycasa																									
4910	AUSTRALIA AUSTRALIAN BC CORP Tennant Creek																									
	HONDURAS LV DE LA MOSQUITIA Puerto Lempira																									
4910 v	GUINEA RTV GUINEENNE Conakry																									
	INDONESIA R REP INDONESIA Bukittinggi, Sumat'a																									
	ZAMBIA RADIO ZAMBIA Lusaka																									
4910.2	PERU RADIO TAWANTINSUYO Cuzco																									
4910.7	PERU RADIO LIBERTAD Trujillo																									
4911 v	ECUADOR EM GRAN COLOMBIA Quito																									
4915	BRAZIL RADIO ANHANGUERA Goiânia																									
	RADIO NACIONAL Macapá																									
	CHINA (PR) GUANGXI PEOPLES BS Nanning																									
	GHANA GHANA BC CORP Accra																									
4915 v	COLOMBIA ARMONIAS CAQUETA Florencia																									
	KENYA VOICE OF KENYA Nairobi																									
4920	AUSTRALIA AUSTRALIAN BC CORP Brisbane																									
	INDIA ALL INDIA RADIO Madras																									
	USSR YAKUT RADIO Yakutsk																									

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

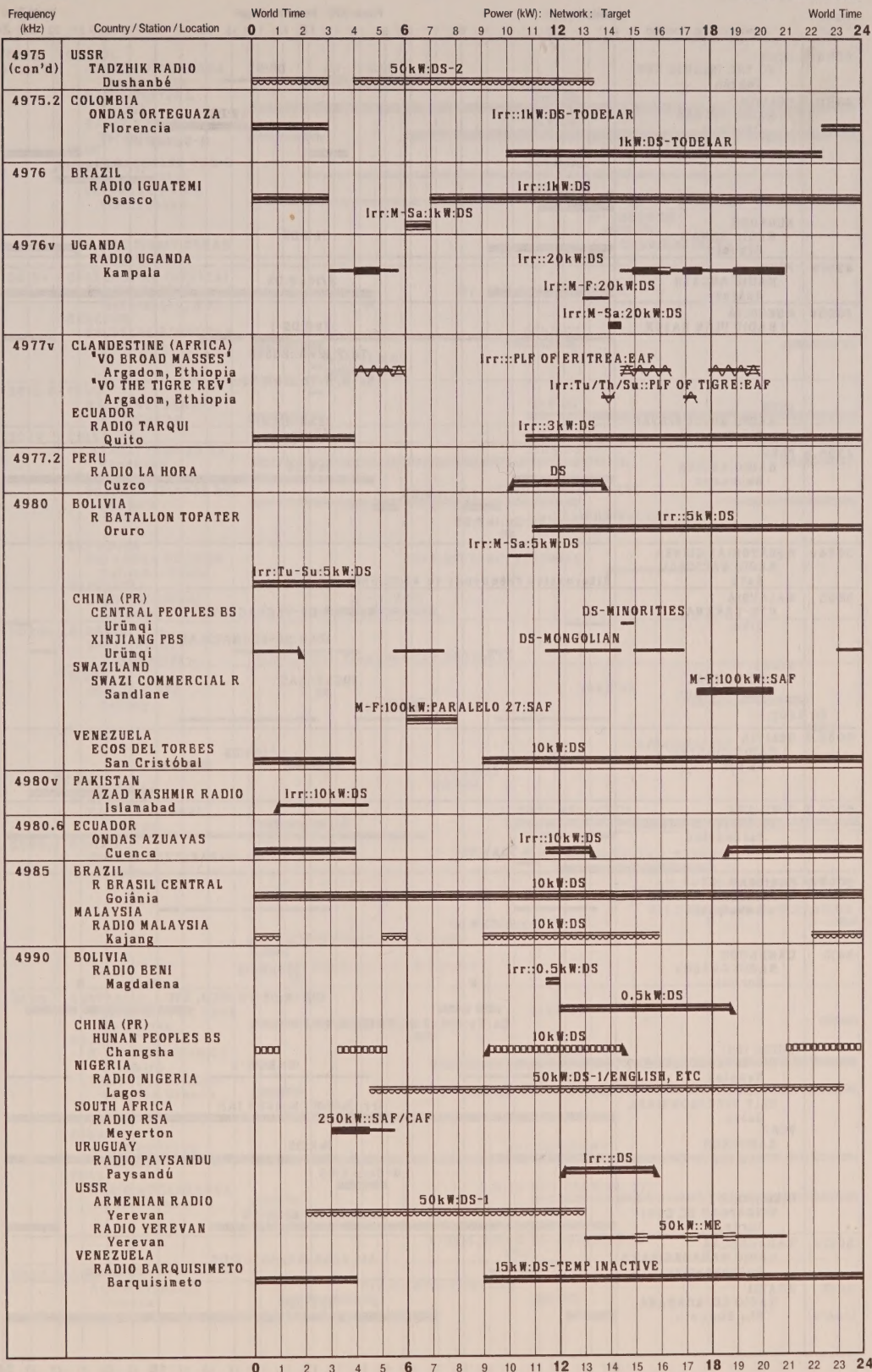
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
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ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
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SUMMER ONLY (J)	WINTER ONLY (D)	JAMMING / 〽 or /	EARLIEST HEARD	LATEST HEARD
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		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4965 (con'd)	BRAZIL TRIANGULO MINEIRO Uberaba																									
	NAMIBIA SW AFRICA BC CORP Windhoek																									
4965v	BOLIVIA RADIO JUAN XXIII San Ignacio Velasco																									
	BRAZIL RADIO POTI Natal																									
4966	PERU RADIO SAN MIGUEL Cuzco																									
4968	SRI LANKA SRI LANKA BC CORP Colombo-Ekala																									
4969.8	ANGOLA ER DA CABINDA Cabinda																									
4970	CHINA (PR) CENTRAL PEOPLES BS Urumqi																									
	RADIO BEIJING Urumqi																									
4970v	MALAYSIA RTM-KOTA KINABALU Kota Kinabalu																									
	VENEZUELA RADIO RUMBOS Caracas																									
4970v	PERU RADIO IMAGEN Tarapoto																									
4971v	CAMEROON RADIO NATIONALE Yaoundé																									
4973	CLANDESTINE (AFRICA) "AV DO GALO NEGRO"																									
4975	BOLIVIA MARIA AUXILIADORA Montero																									
	BRAZIL RADIO TIMBIRA São Luis																									
4975	CHINA (PR) FUJIAN PEOPLES BS Jianyang																									
	PERU RADIO DEL PACIFICO Lima																									
(con'd)	USSR RADIO DUSHANBE Dushanbé																									
	RADIO MOSCOW/RP&P Dushanbé																									

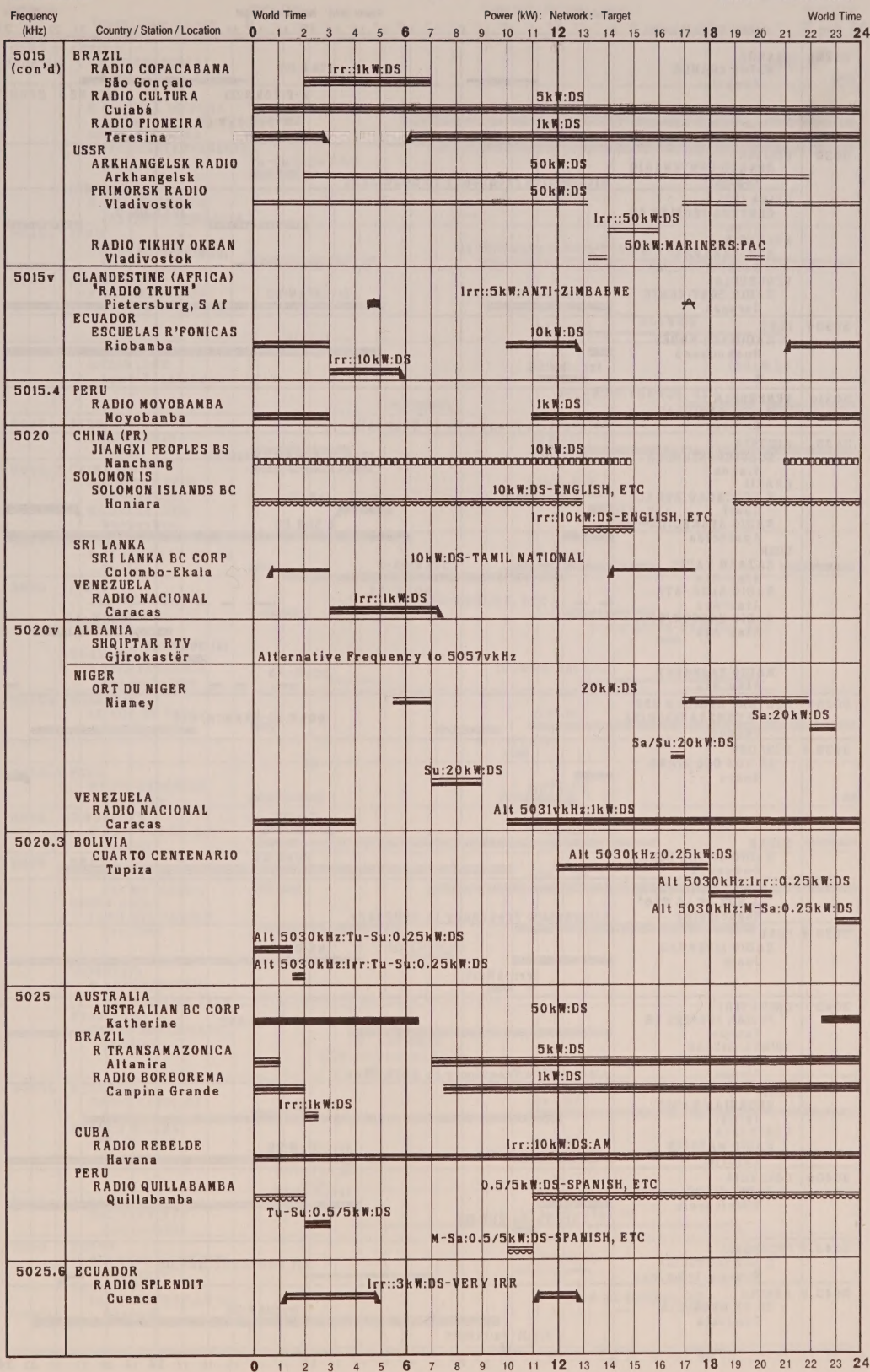
ENGLISH — GERMAN / DEUTSCH — FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
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 ARABIC / ٠٠٠ RUSSIAN / РУССКИЙ — CHINESE / 中 国 — JAPANESE / 日 本 — MULTILINGUAL 0000 OTHER —
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		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4990 v	IRAN VO THE ISLAMIC REP Tehrân																									
4991	BOLIVIA RADIO ANIMAS Chocaya																									
	ECUADOR RADIO BAHAI Otavalo																									
4991 v	PERU RADIO ANCASH Huáraz																									
4995 v	MONGOLIA RADIO ULAN BATOR																									
	USSR RADIO MOSCOW/RP&P Via Mongolia																									
	PERU RADIO ANDINA Huancayo																									
5004 v	EQUATORIAL GUINEA RADIO NACIONAL Batá	Alternative Frequency to 4925.6 kHz																								
5005	MALAYSIA RTM-SARAWAK Sibu																									
	NEPAL RADIO NEPAL Harriharpur																									
5005.5	BOLIVIA RADIO CRISTAL La Paz																									
5005.7	SURINAME STICHTING R OMROEP Paramaribo																									
5007 v	PAKISTAN PAKISTAN BC CORP Rawalpindi																									
5010	CAMEROON RADIO GAROUA Garoua																									
	CHINA (PR) GUANGXI PEOPLES BS Nanning																									
	COLOMBIA CULT SURCOLOMBIANA Neiva																									
	PERU RADIO ECO Iquitos																									
	SINGAPORE SINGAPORE BC CORP Jurong																									
5010 v	MADAGASCAR RADIO MADAGASIKARA Antananarivo																									
5015 (con'd)	BRAZIL RADIO COPACABANA São Gonçalo																									

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
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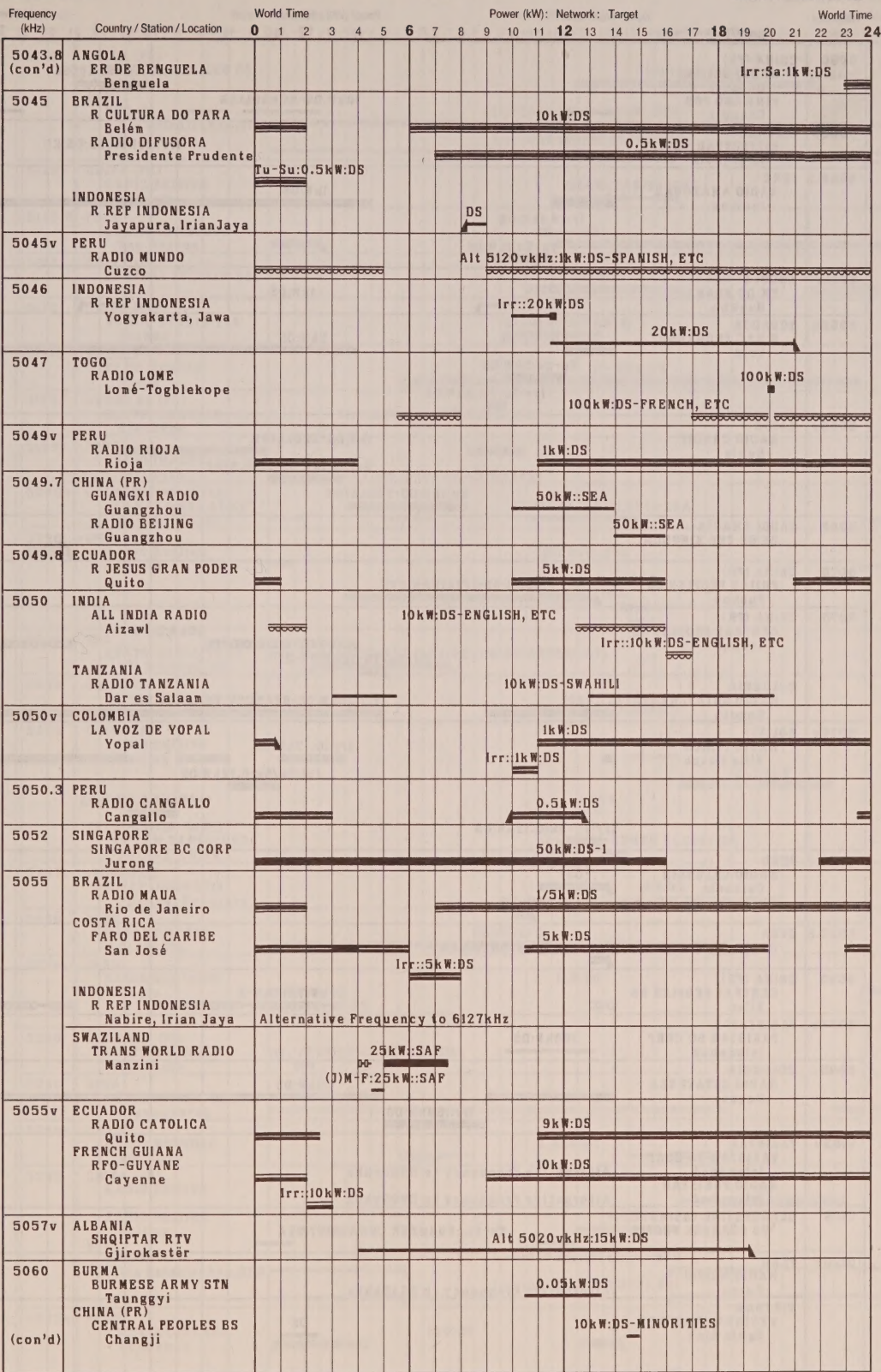


ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL

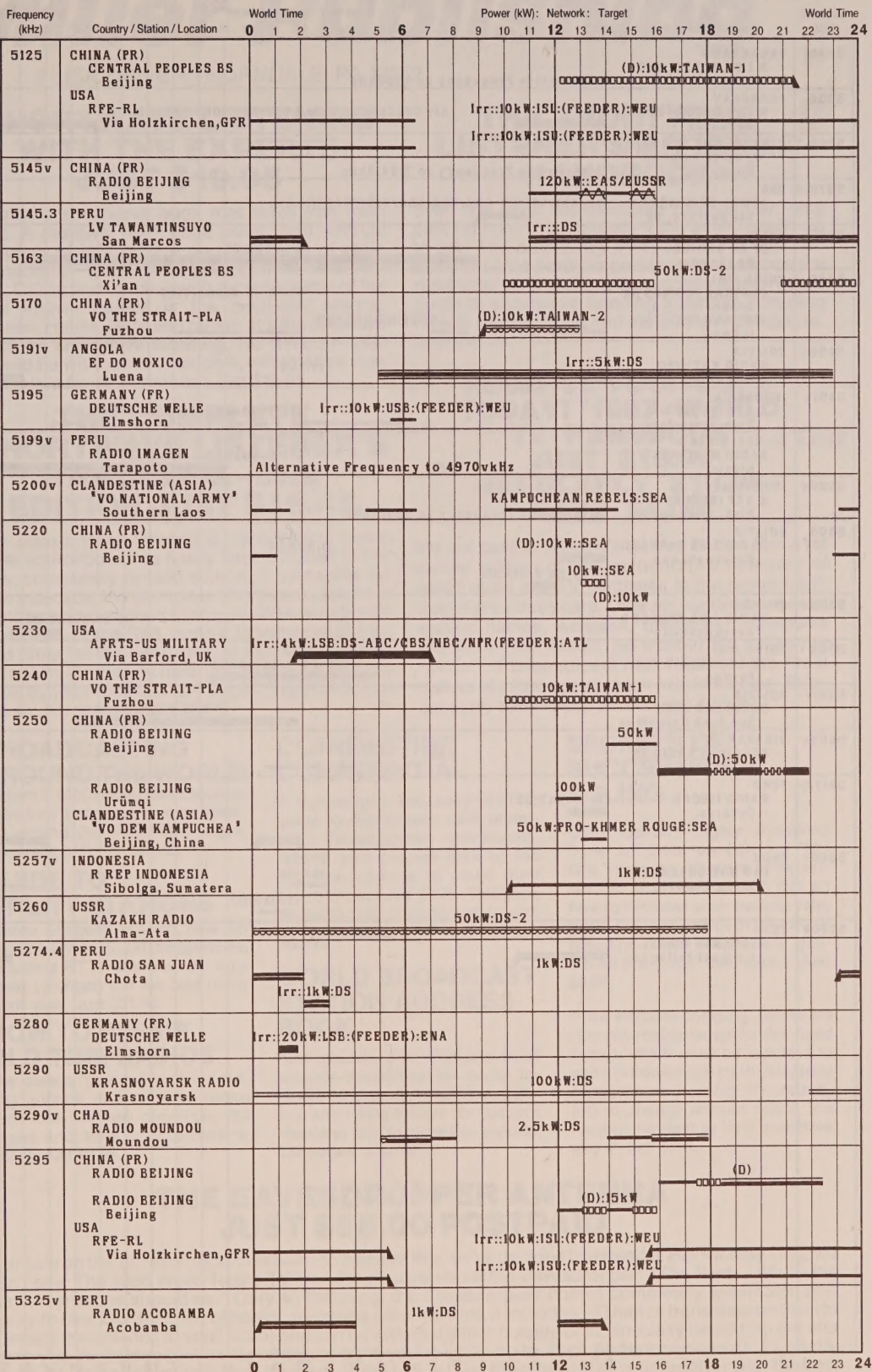
ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER

SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD * TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5026v	UGANDA RADIO UGANDA Kampala													20kW:DS												
														M-F:20kW:DS												
														M-Sa:20kW:DS												
5030	BOLIVIA CUARTO CENTENARIO Tupiza																									
	CHINA (PR) CENTRAL PEOPLES BS Xi'an																			10kW:DS-2						
	MALAYSIA RTM-SARAWAK Kuching-Stapok																			10kW:DS-B'DAYUTH						
	VENEZUELA RADIO CONTINENTE Caracas													Irr:15kW:DS												
5030v	PERU RADIO LOS ANDES Huamachuco													1kW:DS												
														Irr:1kW:DS												
5031v	VENEZUELA RADIO NACIONAL Caracas																									
5035	AUSTRIA SCHULUNGSENDER Vienna													10kW:DS-ARMY TRAINING 00000000000000000000												
	BRAZIL R EDUCACAO RURAL Coari													1kW:DS												
	RADIO APARECIDA Aparecida													2.5kW:DS												
	USSR KAZAKH RADIO Alma-Ata													50kW:DS-2												
	RADIO ALMA-ATA Alma-Ata													50kW:AS												
	RADIO MOSCOW/RP&P Alma-Ata																									
	RADIO TASHKENT Alma-Ata													50kW:AS												
5035v	CENTRAL AFRICAN REP RTV CENTRAFRICAINE Bangui													100kW:DS-FRENCH, ETC												
5038.8	ECUADOR LA VOZ DEL UPANO Macas													DS												
														Irr:DS												
	SUDAN RADIO OF THE SUDAN Omdurman													Su:DS												
														20kW:DS												
5039v	CLANDESTINE (C AMER) 'LA VOZ DE LA UNO' Tegucigalpa																									
5039.8	PERU RADIO LIBERTAD Junin													1kW:DS												
														Irr:1kW:DS												
5040	CHINA (PR) FUJIAN PEOPLES BS Fuzhou													10kW:DS-1/TAIWAN SVC												
	GUINEA-BISSAU RADIO NACIONAL Bissau																									
	USSR GEORGIAN RADIO Tbilisi													50kW:DS-1												
	VENEZUELA RADIO MATURIN Maturin													Irr:10kW:DS												
5040v	COLOMBIA RADIO CINCO Villavicencio													Irr:2kW:DS												
														Irr:Tu-Su:2kW:DS												
5043.7	INDONESIA R REP INDONESIA Wamena, IrianJaya													Alt 4867kHz:0.5kW:DS												
5043.8	ANGOLA ER DE BENGUELA Benguela													Irr:1kW:DS												
														Irr:M-Sa:1kW:DS												



Call Sign	Station Name	Frequency	Power	Mode	Remarks
5060 (con'd)	CHINA (PR) RADIO BEIJING Changji XINJIANG PBS Changji				Irr::10kW:EUSSR 10kW:DS-MONGOLIAN
5060v	ICELAND RIKISUTVARPID Reykjavik				Irr:10kW:USB:DS:EU
5060.3	PERU RADIO AMAZONAS Iquitos				1kW:DS Irr:M:1kW:DS =Tu-Su:1kW:DS
5061v	ANGOLA ER DO HUAMBO Huambo				1kW:DS
5063v	ECUADOR R NAC PROGRESO Loja				5kW:DS Tu-Su:5kW:DS Irr:Tu-Su:5kW:DS
5066v	ZAIRE RADIO CANDIP Bunia				1kW:DS-SCOLAIRE Sa/Su:1kW:DS-SCOLAIRE Su:1kW:DS-SCOLAIRE
5068	SAUDI ARABIA BS OF THE KINGDOM				Irr::DS
5070	CHINA (PR) FUJIAN PEOPLES BS Fuzhou				10kW:DS-1/TAIWAN SVC
5075	CHINA (PR) CENTRAL PEOPLES BS Urūmqi COLOMBIA RADIO SUTATENZA Bogotá				50kW:DS-2 Sa-Tu/Th:50kW:DS-2 Irr::25kW:DS-STANDBY TX
5076v	BOLIVIA RADIO ICHILO Villa Busch				Irr:0.12kW:DS Irr:Sa/Su:0.12kW:DS Irr:Su-F:0.12kW:DS Irr:Tu-Su:0.12kW:DS
5084.7	PERU RADIO CELENDIN Celendin				DS Irr::DS
5087.5	CUBA RADIO REBELDE				Irr:10kW:DS-SPORTS:CAM
5090	CHINA (PR) CENTRAL PEOPLES BS Xi'an				50kW:TAIWAN-2
5094v	PAKISTAN PAKISTAN BC CORP Islamabad				100kW:DS
5095	COLOMBIA RADIO SUTATENZA Bogotá				50kW:DS Irr:50kW:DS
5103v	PAKISTAN PAKISTAN BC CORP Islamabad RADIO PAKISTAN Islamabad				Alternative Frequency to 3980vkhz Alternative Frequency to 3980vkhz
5109	CLANDESTINE (ASIA) *VO BURMESE PEOPLE				Tu-Su:3BURMESE COMMUNIST:SEA
5120v	PERU RADIO MUNDO Cuzco VIETNAM REGIONAL RADIO BS Nghia Binh				Alternative Frequency to 5045vkhz DS



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Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time											
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
5340	PARAGUAY R 1 DE MARZO, ETC Asunción	Alternative Frequency to 5350kHz																																			
5350	PARAGUAY R 1 DE MARZO, ETC Asunción	Alt 5340kHz:Irr::10kW:USB:DS-SPORTS(FEEDER):SA																																			
5365.3	CLANDESTINE (C AMER) '15 DE SETIEMBRE' Honduras	Alternative Frequency to 7194.8kHz																																			
5376.8	USA AFRTS-US MILITARY Via Barford, UK	Irr::4kW:LSB:DS-ABC/CBS/NBC/NPR(FEEDER):ATL																																			
5405v	ANGOLA EP DE NAMIBE Moçâmedes	5kW:DS																																			
5440	CHINA (PR) CENTRAL PEOPLES BS Urumqi XINJIANG PBS Urumqi	50kW:DS-KAZAKH 50kW:DS-MINORITIES																																			
5450v	BOLIVIA RADIO MACHUPO San Ramón Ribera	Irr::DS																																			
5451v	INDONESIA R REP INDONESIA Biak, Irian Jaya	Alt 5500vkHz:Irr::1kW:DS																																			
5475.5	GUINEA-BISSAU RADIO NACIONAL Bissau	Alt 5040kHz:Irr::10kW:DS																																			
5500v	INDONESIA R REP INDONESIA Biak, Irian Jaya	Alternative Frequency to 5451vkHz																																			
5505	BOLIVIA RADIO 2 DE FEBRERO Rurrenabaque	0.5kW:DS Tu-Su:0.5kW:DS																																			
5505v	BOLIVIA RADIO 2 DE FEBRERO Rurrenabaque	W-Sa:0.5kW:DS																																			
5508	CHINA (PR) VO THE STRAIT-PLA Fuzhou	SPR:DS-2/6X918KHZ																																			
5581v	BOLIVIA RADIO SAN JOSE San José Chiquitos	0.5kW:DS																																			
5609v	VIETNAM REGIONAL RADIO BS Hoang Lien Son	DS																																			
5617.5	PERU RADIO ILUCAN Cutervo	Irr::0.2kW:DS 0.2kW:DS																																			
5660v	LAOS LAO NATIONAL RADIO Xieng Khouang	1kW:DS Irr:1kW:DS																																			
5720v	PERU RADIO SAN MIGUEL S Miguel Pallaques	Irr::DS																																			

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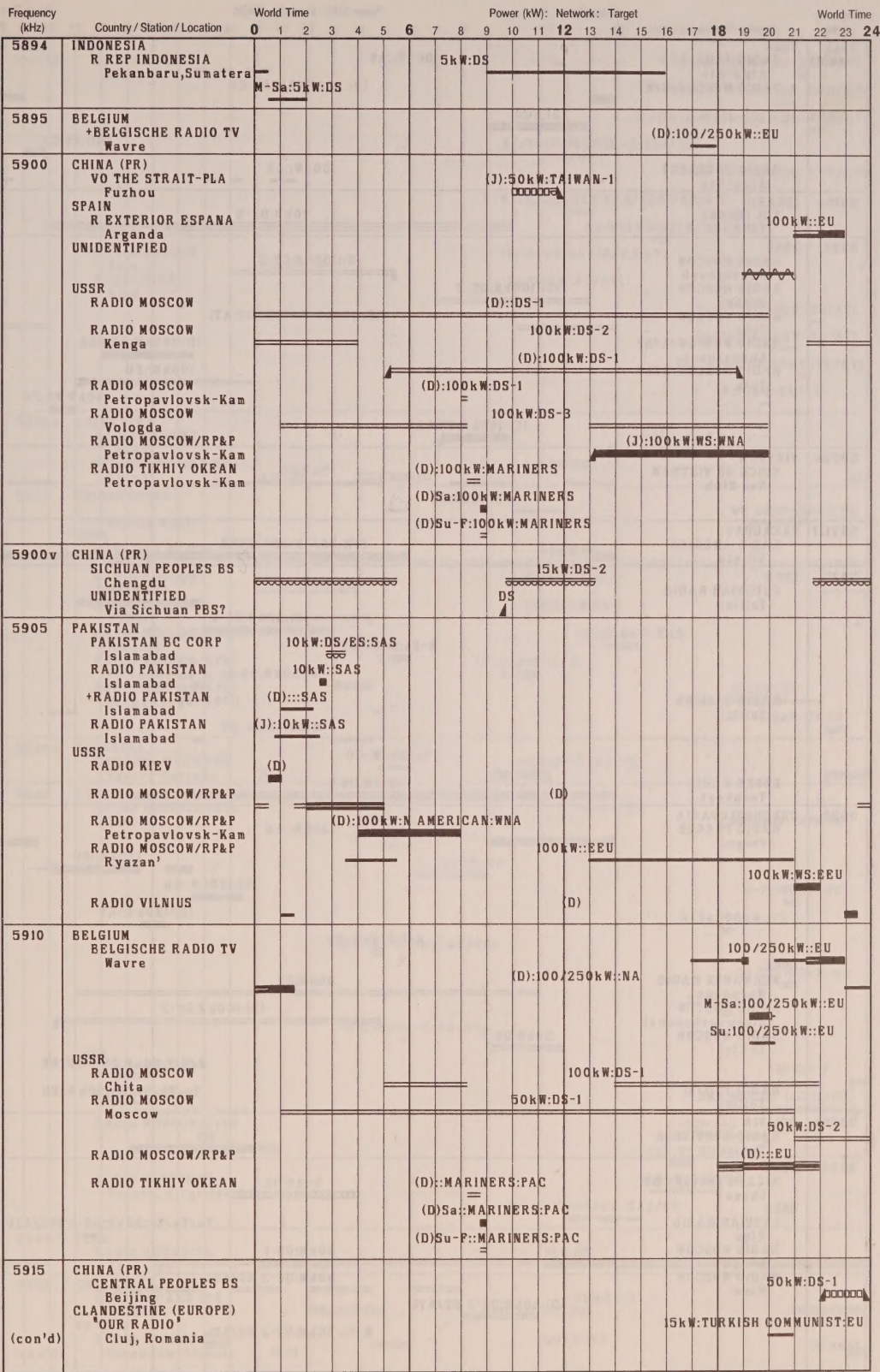
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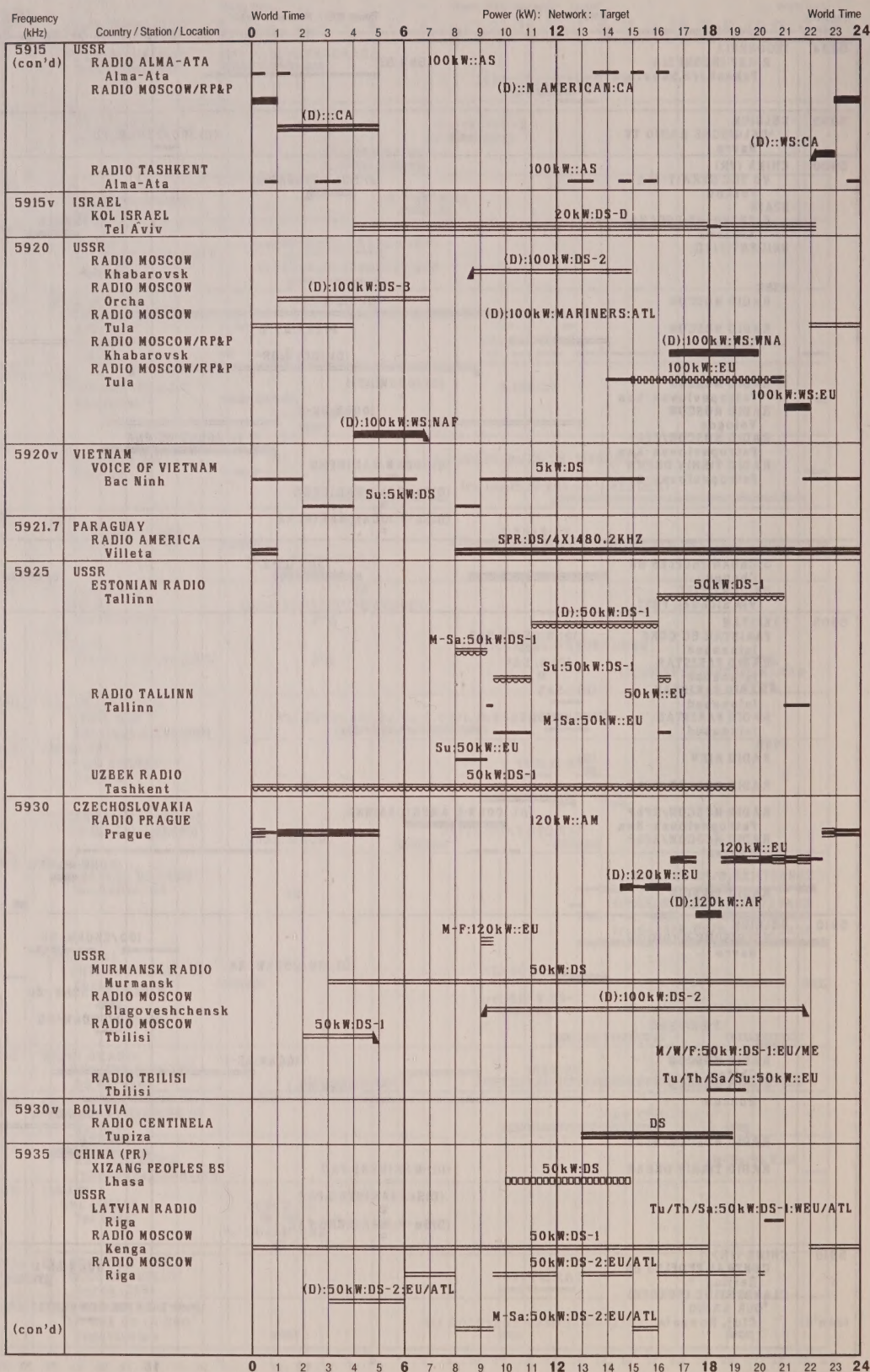
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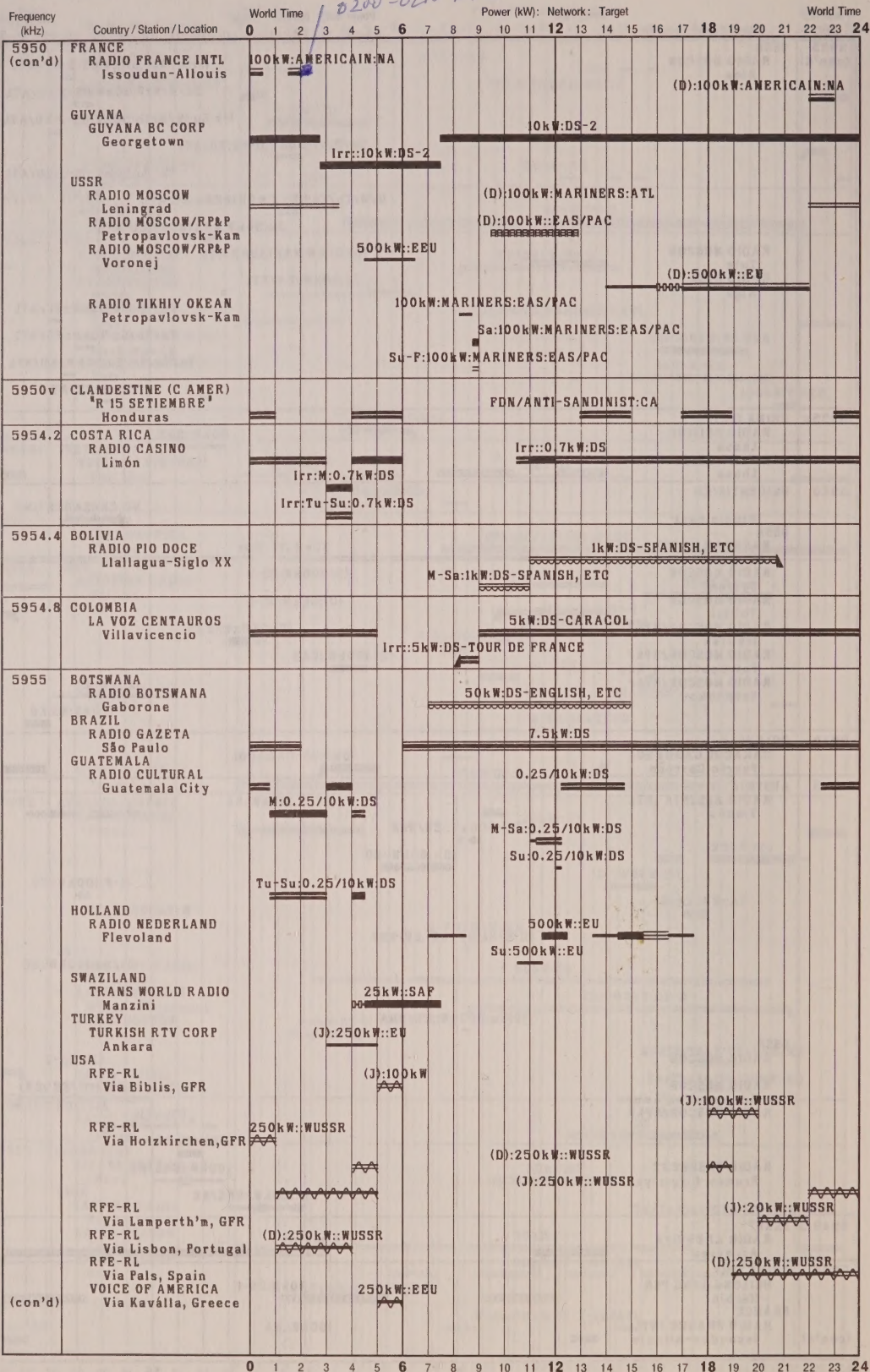
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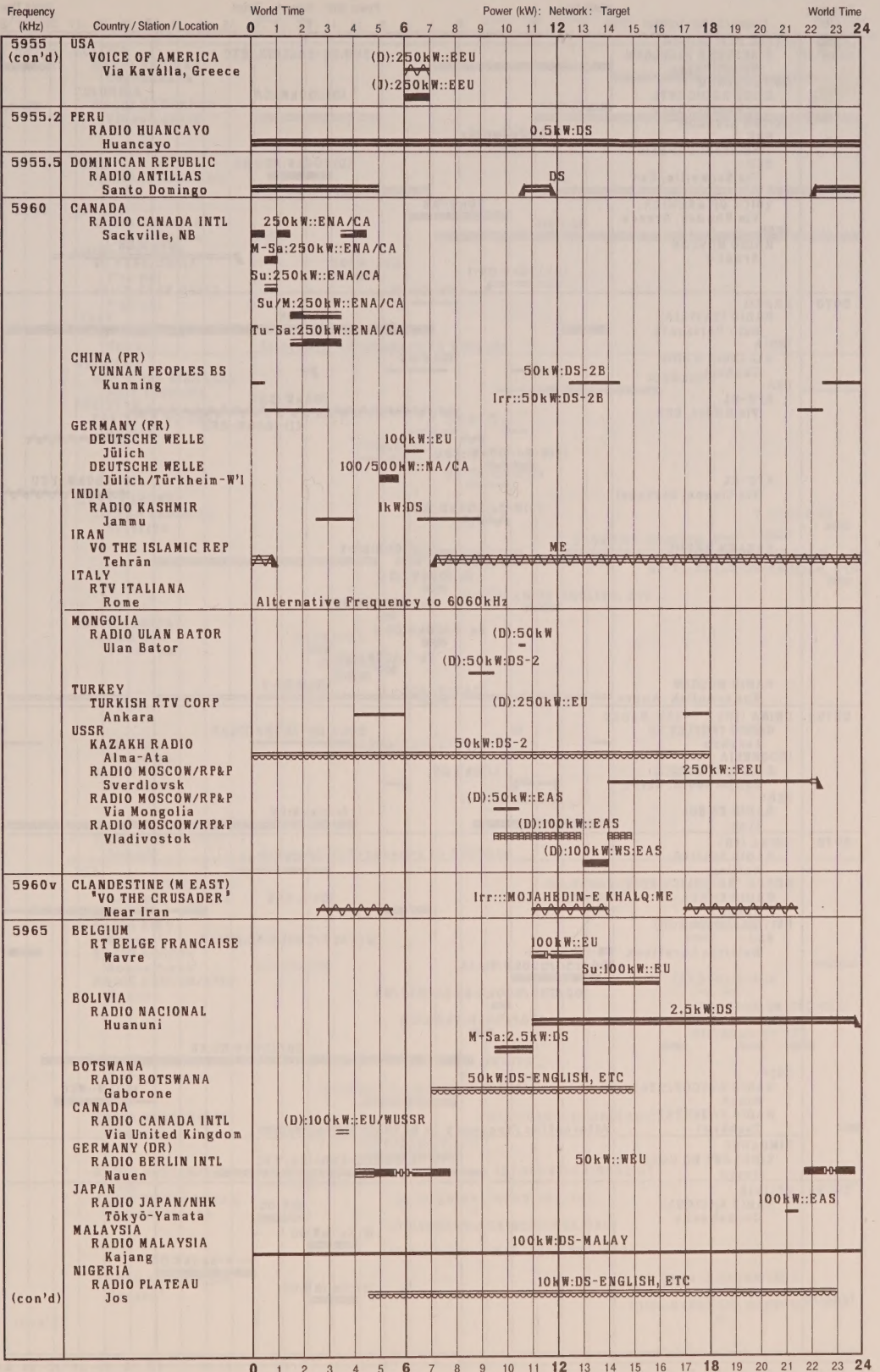
Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time	
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
5745	USA VOICE OF AMERICA Greenville, NC	50kW:LSB:(FEEDER):CA						50kW:USB:(FEEDER):CA																			
5770	CHINA (PR) VO THE STRAIT-PLA Fuzhou							(D):10kW:TAIWAN-2						10kW:TAIWAN-2													
5780	USSR TASS NEWS AGENCY Moscow							M-F:15kW:DS																			
5790	USA RFE-RL Via Holzkirchen,GFR	Irr::10kW:ISU:(FEEDER):WEU						Irr::10kW:ISL:(FEEDER):WEU																			
5800	CHINA (PR) CENTRAL PEOPLES BS Urümqi XINJIANG PBS Urümqi							50kW:DS-MINORITIES						50kW:DS-UIGHUR													
5802v	PERU FREC SAN IGNACIO San Ignacio	Irr::0.1kW:DS												0.1kW:DS													
5815	USSR RADIO MOSCOW Moscow							Irr:(D):15kW:LSB:DS-2(FEEDER)						Irr:(D):15kW:LSB:DS-1(FEEDER)													
5816v	PERU LV DEL ALTIPLANO Puno	Tu-Su:0.85kW:DS												0.85kW:DS													
5845	GERMANY (FR) RFE-RL Holzkirchen USA RFE-RL Via Holzkirchen,GFR	Irr::10kW:ISL:(FEEDER):WEU						Irr::10kW:ISU:(FEEDER):WEU						Irr::10kW:ISL:(FEEDER):WEU													
5849v	PIRATE (PACIFIC) "RADIO KIW" Hastings,N Zealand	Alt 7340vkHz:Sa/Su:0.03/1.7kW:INACTIVE:ANZ																									
5850	CHINA (PR) RADIO BEIJING Beijing CLANDESTINE (AFRICA) "AV DO GALO NEGRO"							120kW:EAS						120kW:USSR						UNITA/PORT ETC:SAF							
5860	CANADA CANADIAN BC CORP Sackville, NB CHINA (PR) CENTRAL PEOPLES BS Shijiazhuang							Irr:M-F::SFR:DS/0.5X11720KHZ						Irr:Sa::SFR:DS/0.5X11720KHZ						Irr:Su::SFR:DS/0.5X11720KHZ							
								(D):50kW:DS-1						Irr::50kW:DS-1						50kW:DS-1							
5875	SAUDI ARABIA BS OF THE KINGDOM Ad Dir'iyah							50kW:DS																			
5880	CHINA (PR) CENTRAL PEOPLES BS Beijing							10kW:DS-1																			
5881	INDONESIA R REP INDONESIA Pekanbaru,Sumatera													M-Sa:5kW:DS													
5885	ISRAEL KOL ISRAEL Tel Aviv	300kW:SA						300kW:ENA																			
5885v	CLANDESTINE (ASIA) "ECHO OF PUBLIC" Korea (DPR)							50kW:EAS																			
5890v	CLANDESTINE (C AMER) "LA VOZ DE LA UNO" Tegucigalpa							Alt 5039vkHz:ANTI-SANDINISTA																			



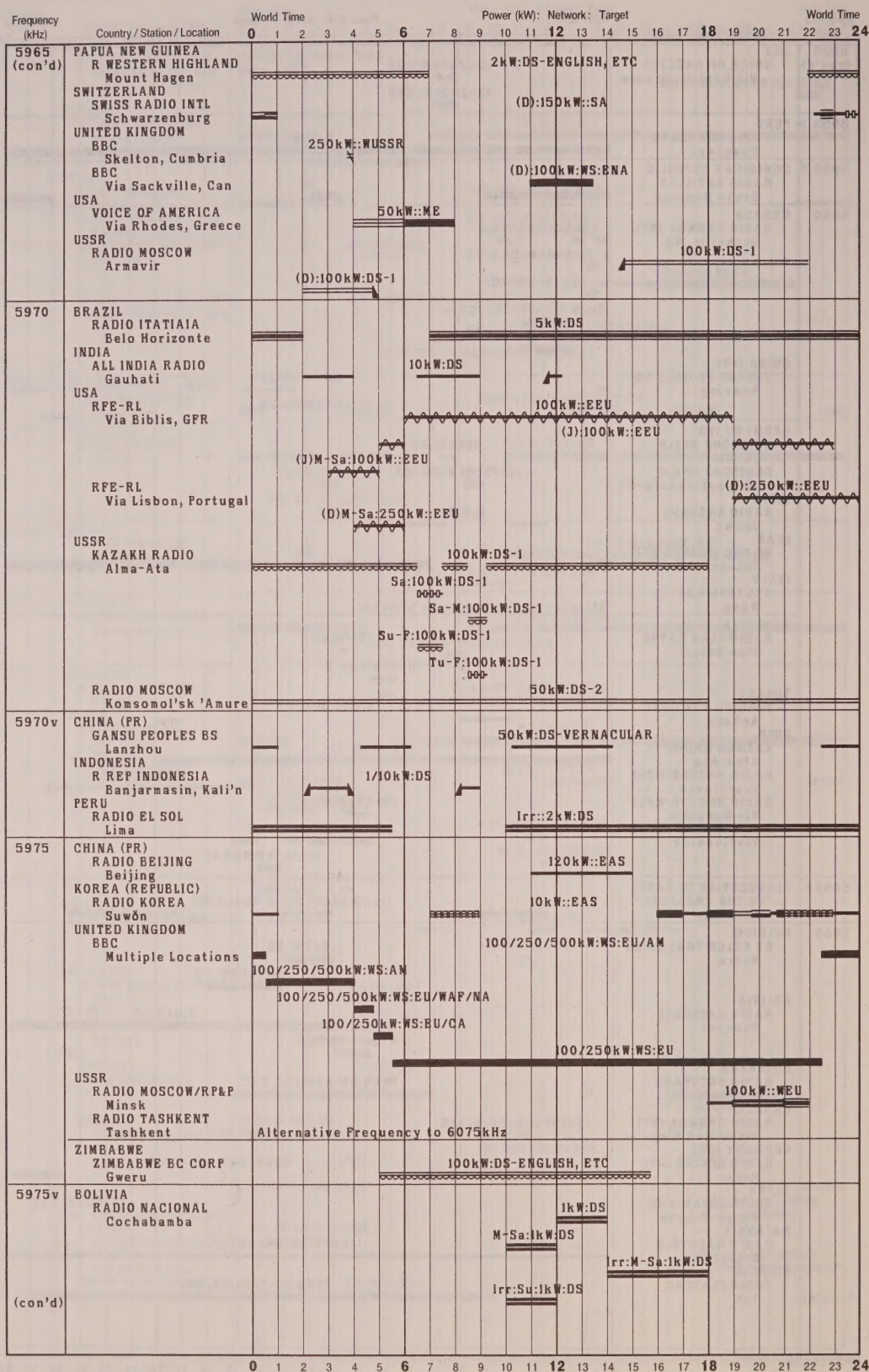


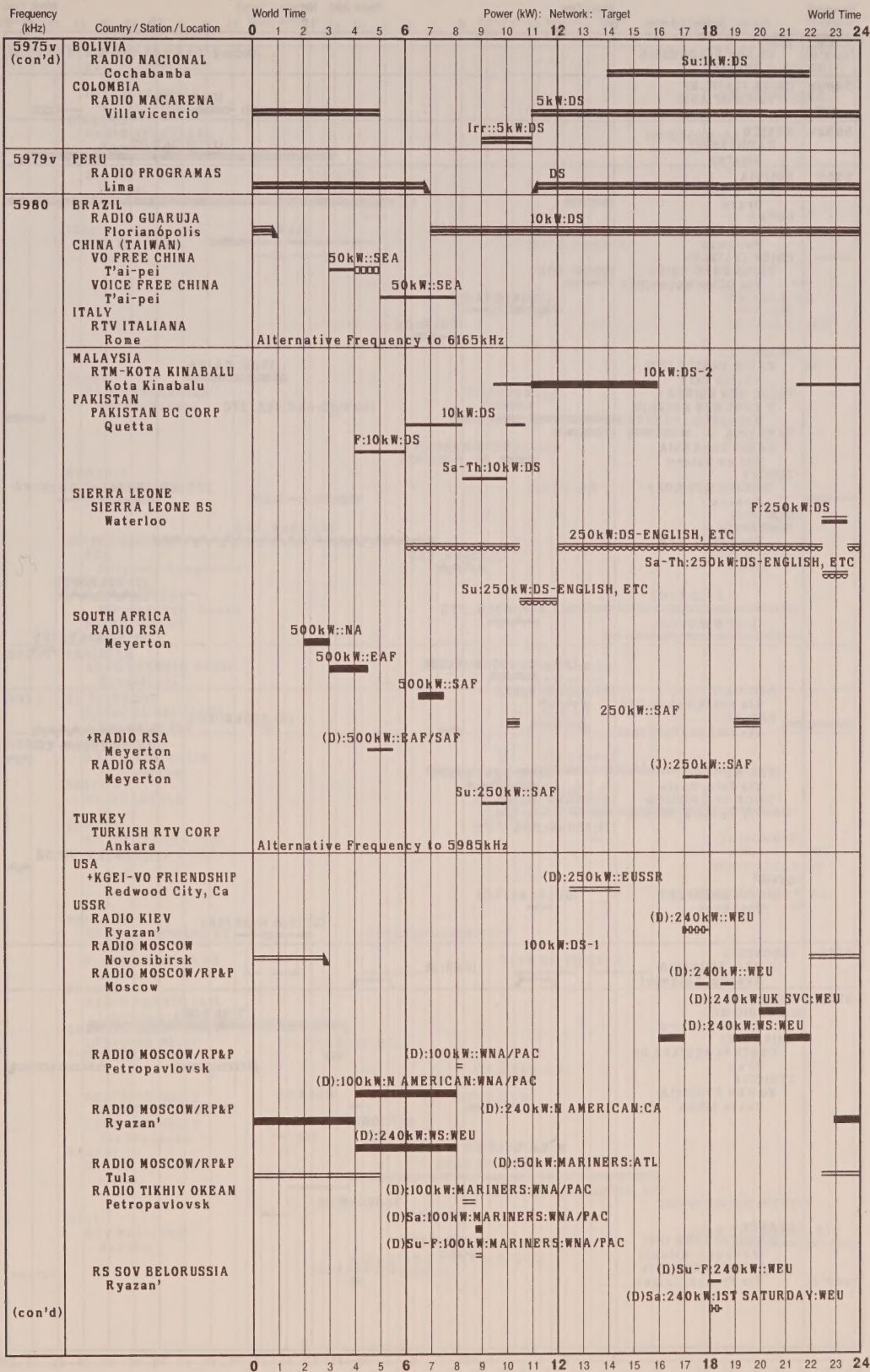
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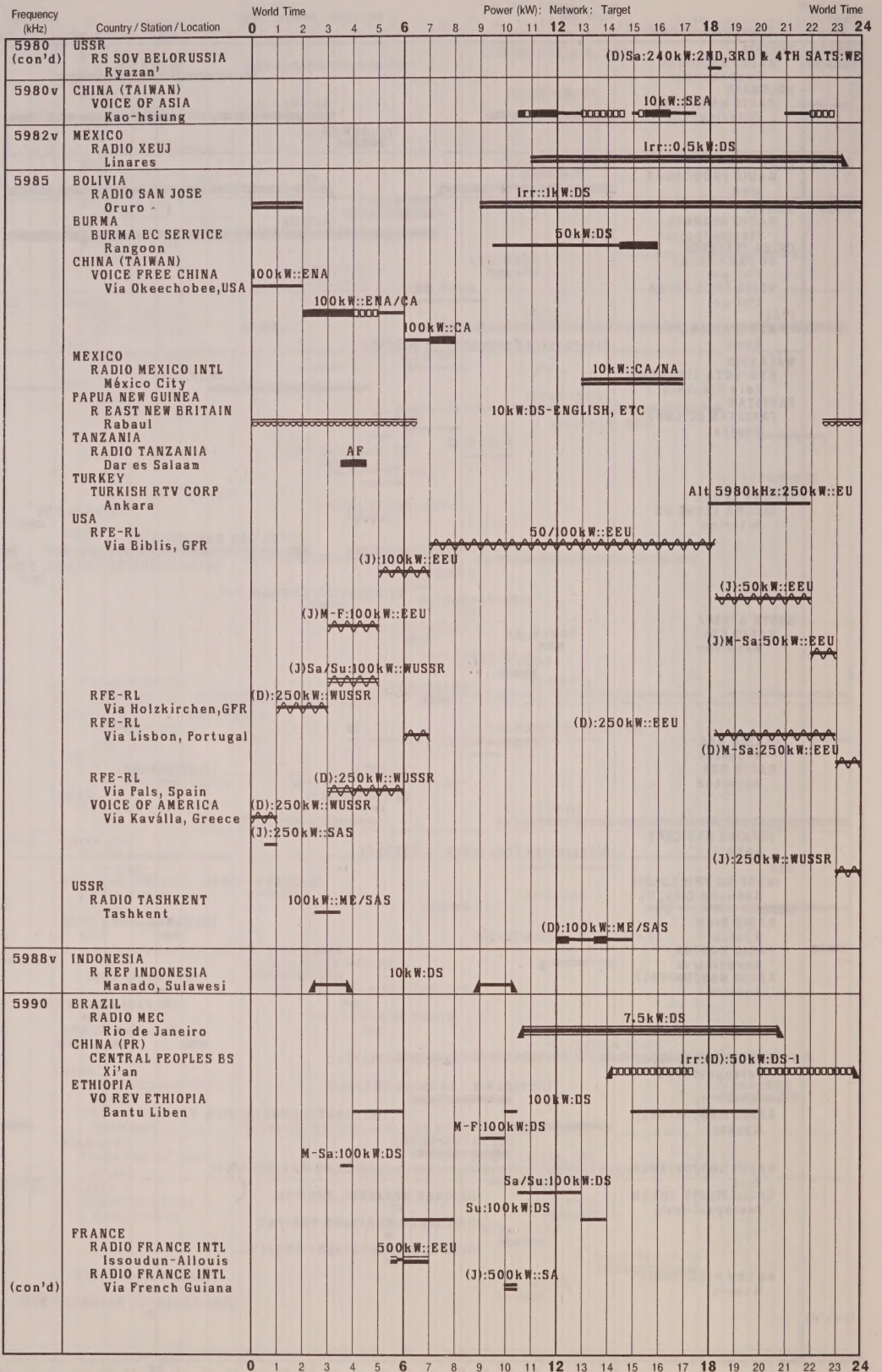




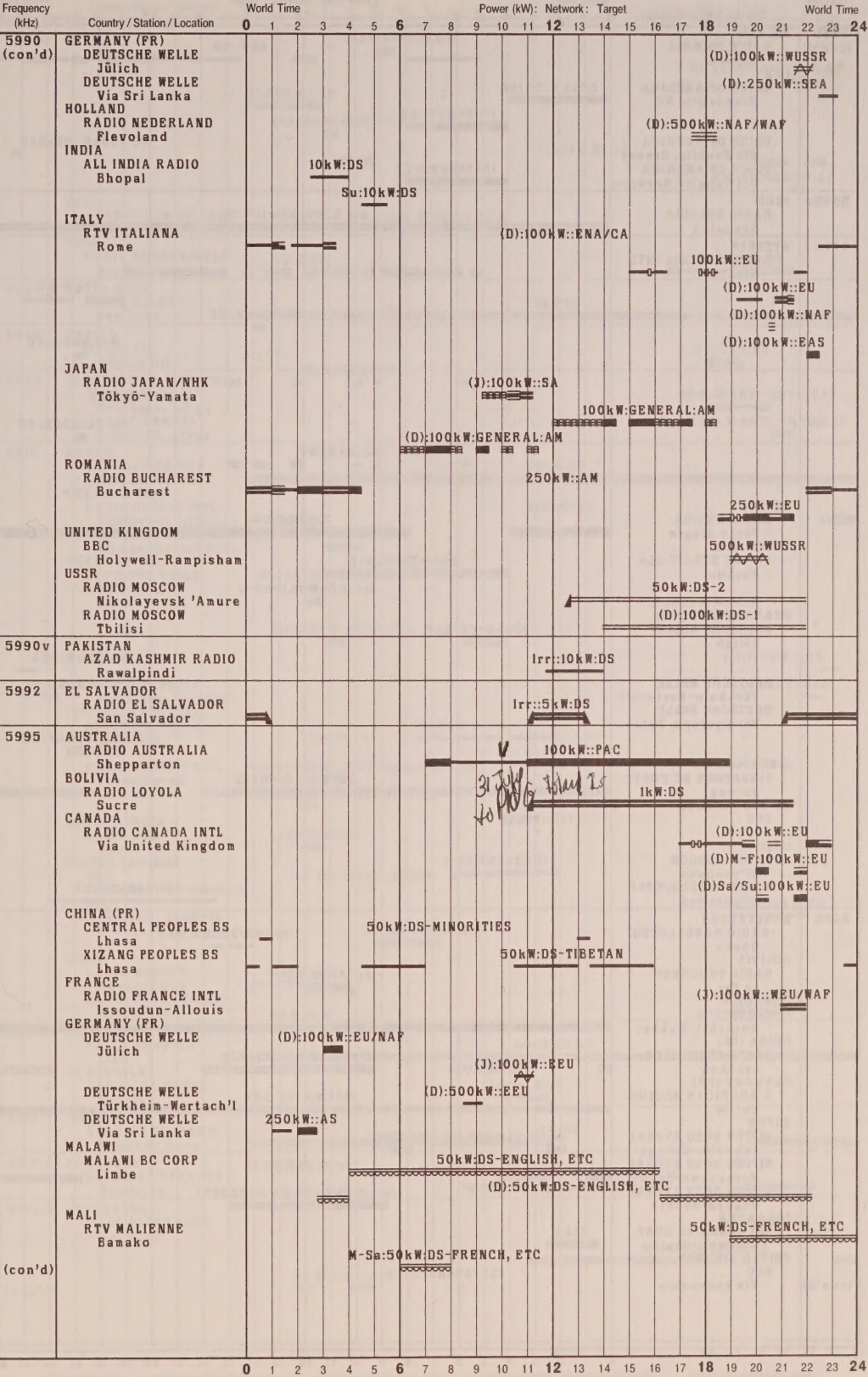
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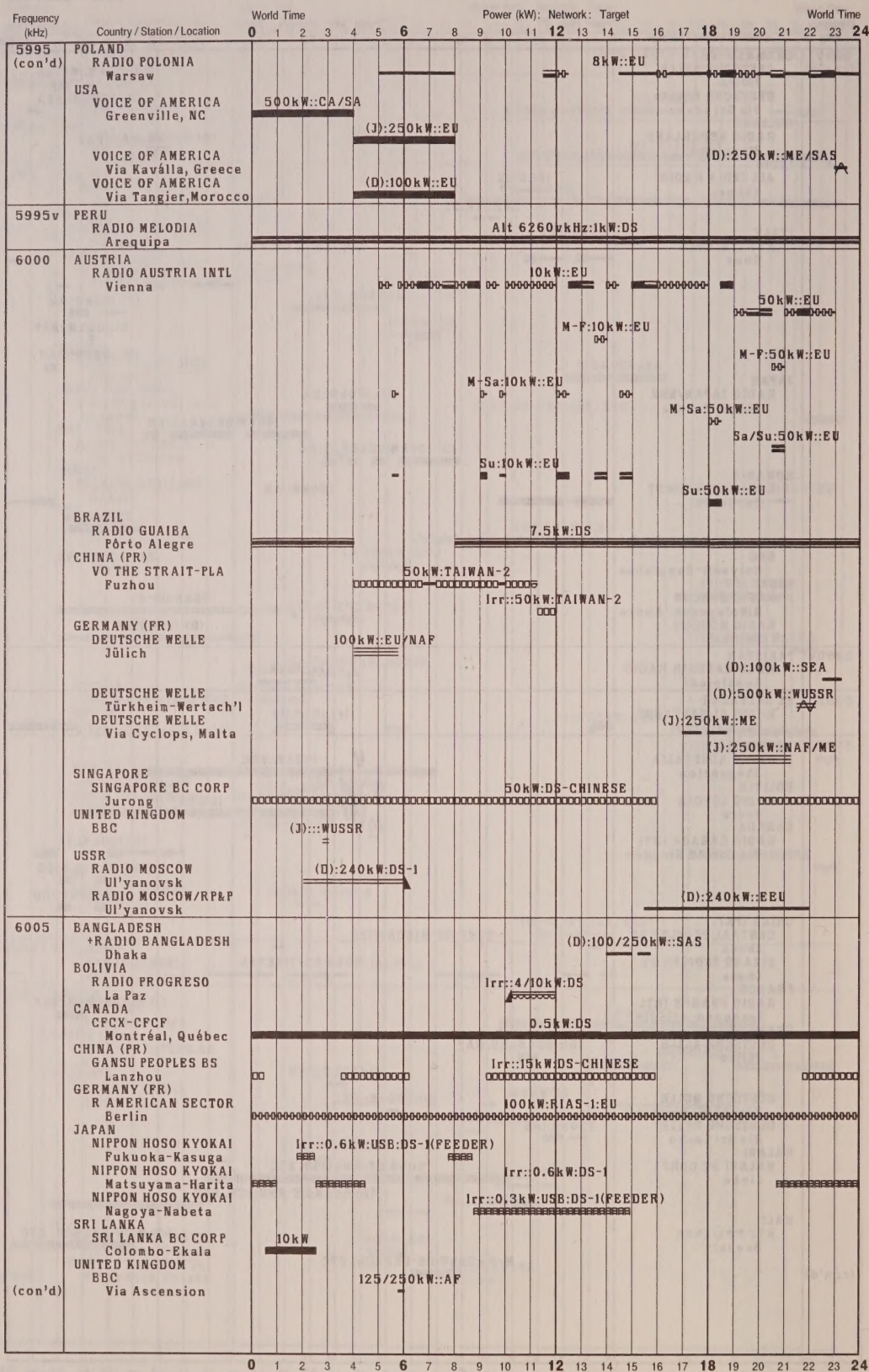






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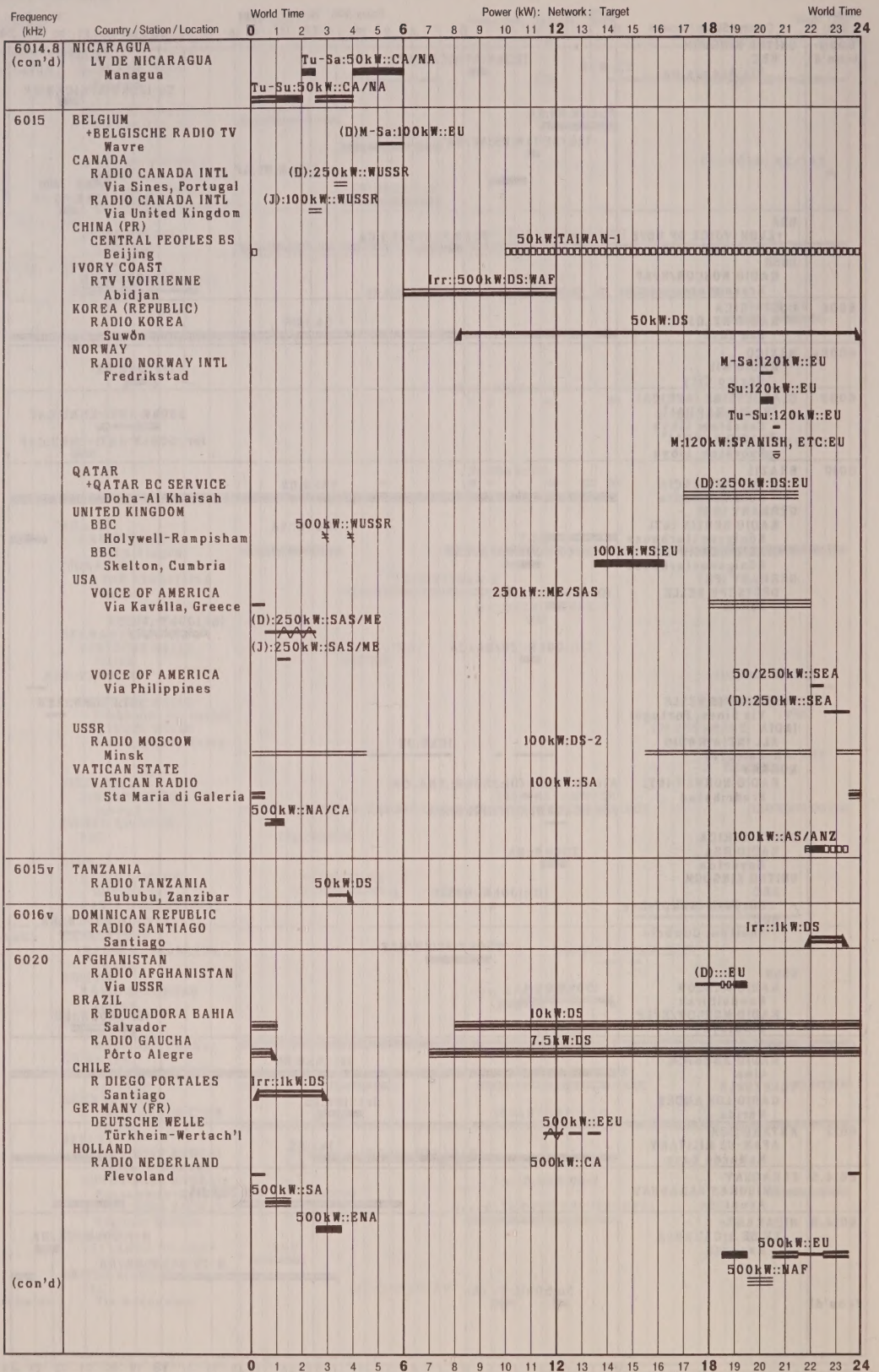


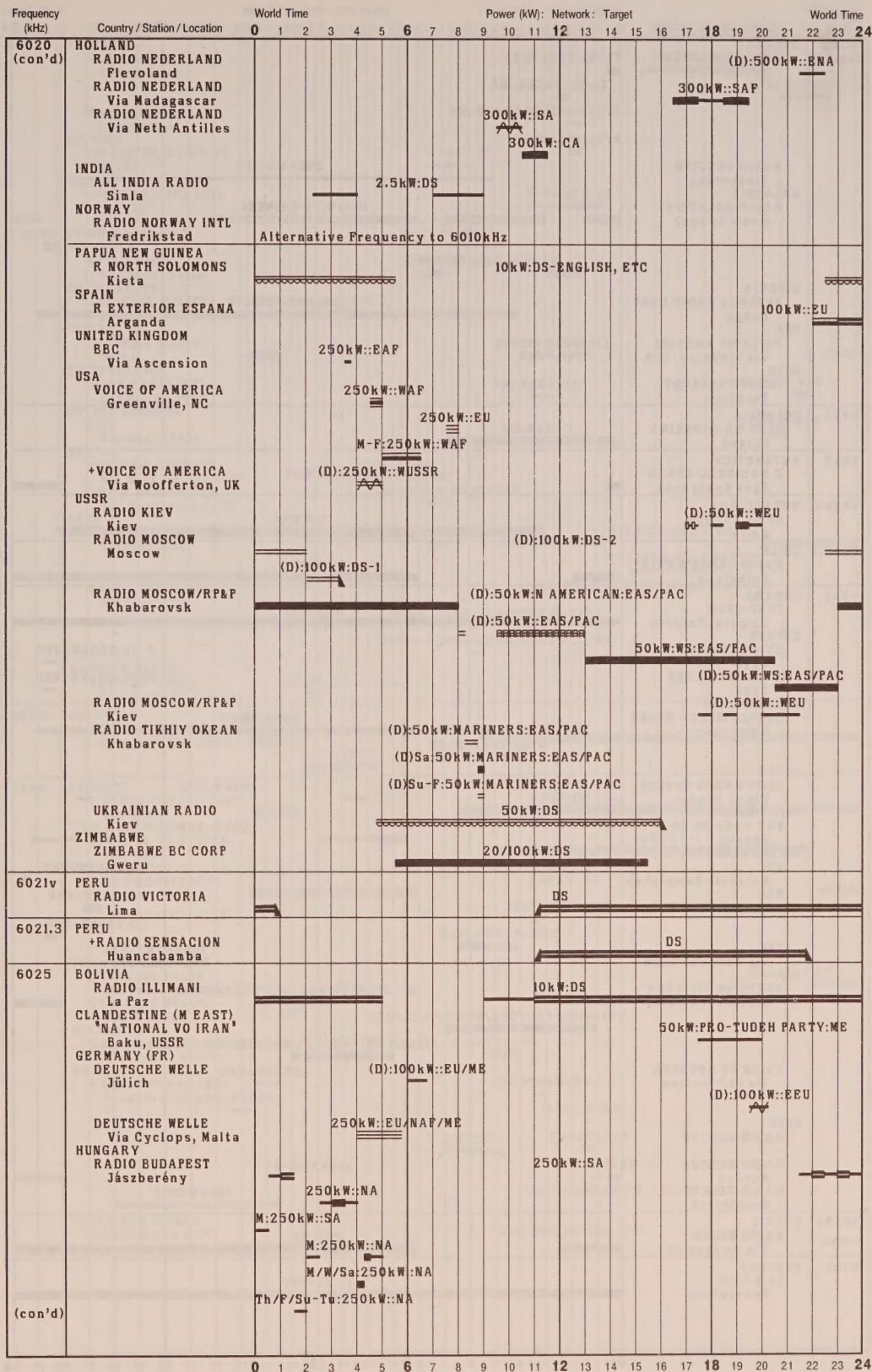


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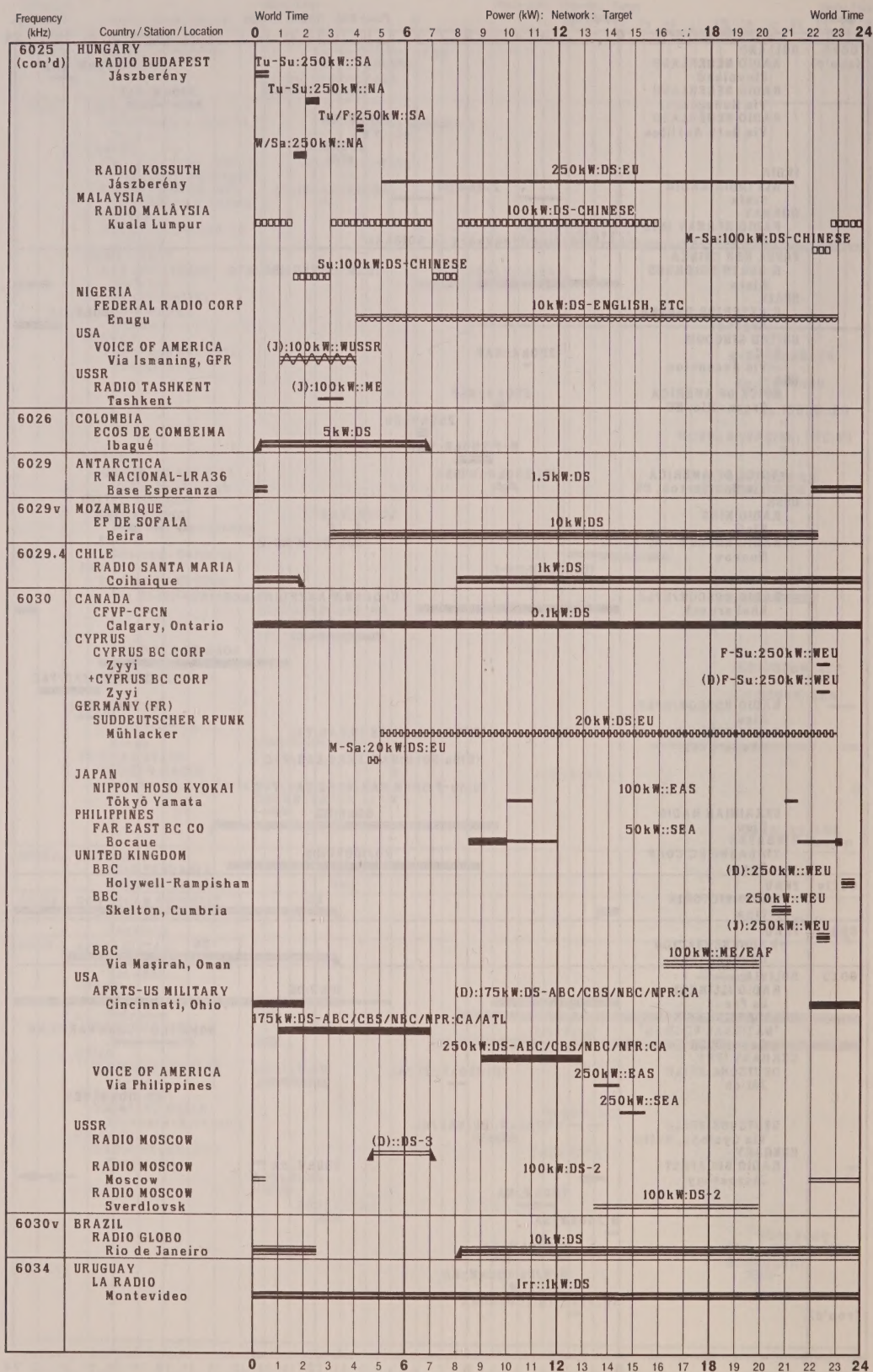
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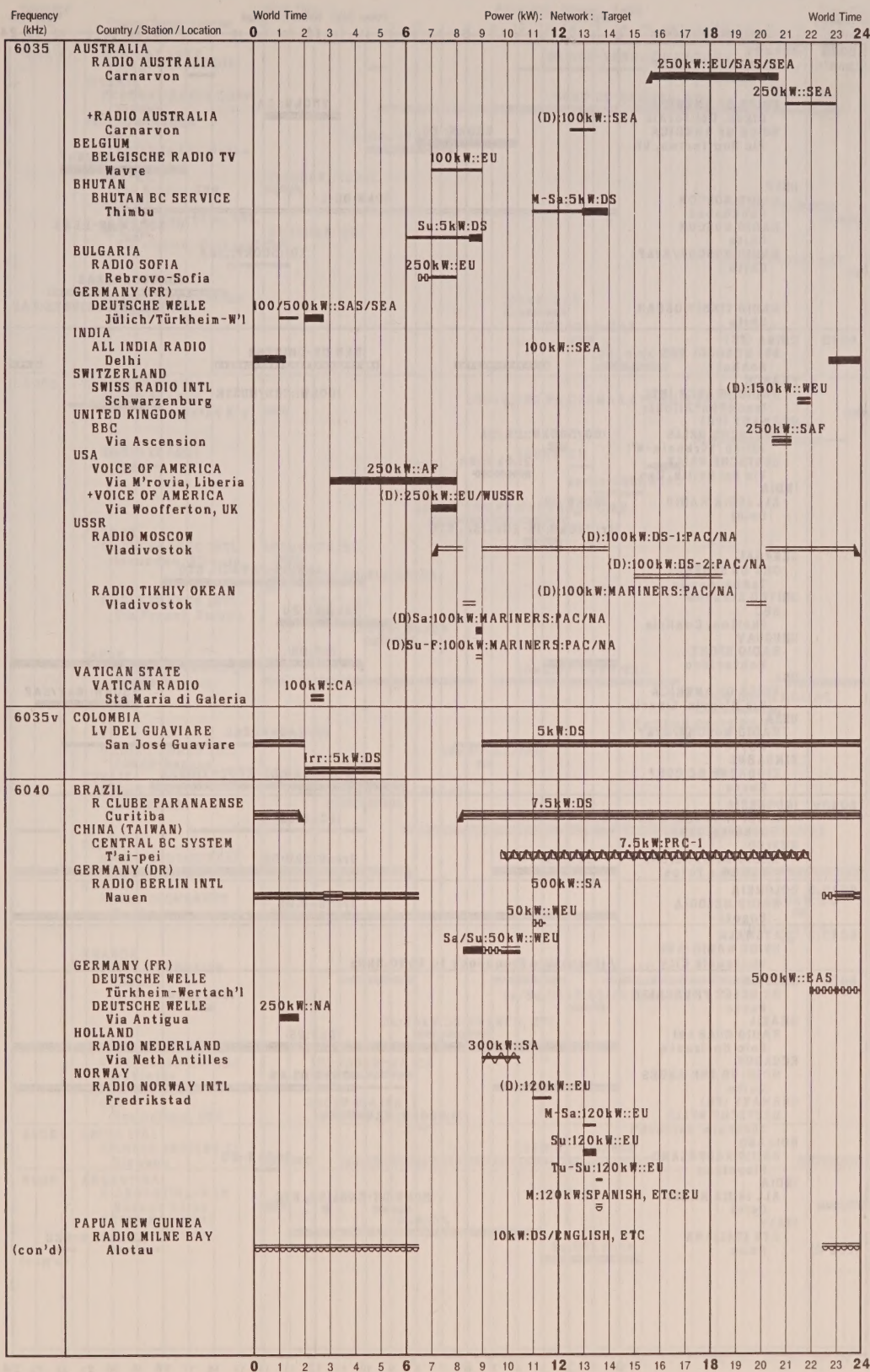
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Frequency (kHz)	Country / Station / Location	World Time												World Time													
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
6040 (con'd)	TURKEY TURKISH RTV CORP Ankara																			(J):250kW::EU							
	USA VOICE OF AMERICA Dixon, California													250kW::CA													
	VOICE OF AMERICA Via Woofferton, UK						250kW::EU														250kW::EU/NAF						
	USSR RADIO MOSCOW Ashkhabad									50kW:DS-1																	
	RADIO MOSCOW Chita																			(D):500kW:DS-1:EAS							
	RADIO MOSCOW/RP&P Chita													(D):500kW::SEA							(D):500kW::EAS						
		RADIO TIKHIY OKEAN Chita																				(D):500kW:NAJINERS:EAS					
	6045	CHINA (PR) NEI MONGGOL PBS Hohhot													15kW:DS-CHINESE												
FRANCE RADIO FRANCE INTL Issoudun-Allouis														100kW::EU/WUSSR													
GERMANY (FR) DEUTSCHE WELLE Jülich/Türkheim-W'l																											
DEUTSCHE WELLE Via Sackville, Can																											
INDIA ALL INDIA RADIO Delhi																											
6045v	INDONESIA R REP INDONESIA Jakarta, Jawa													100kW:DS													
	MEXICO RADIO UNIVERSIDAD San Luis Potosí													Irr::0.5kW:DS													
6045.5	COLOMBIA RADIO MELODIA Bogotá													Irr::5kW:DS													
6049.2	GUATEMALA UNION RADIO-AWR Guatemala City																										
6050 (con'd)	BELGIUM RT BELGE FRANCAISE Wavre																			100kW::EU							
	BRAZIL RADIO GUARANI Belo Horizonte													10kW:DS													
	ECUADOR HCJB-VO THE ANDES Quito													100kW:DS AM													
	GERMANY (FR) DEUTSCHE WELLE Türkheim-Wertach'l																										
	HOLLAND RADIO NEDERLAND Plevoland																										
	INDIA ALL INDIA RADIO Delhi													50kW:DS-ENGLISH, ETC													
	ITALY RTV ITALIANA Rome																										

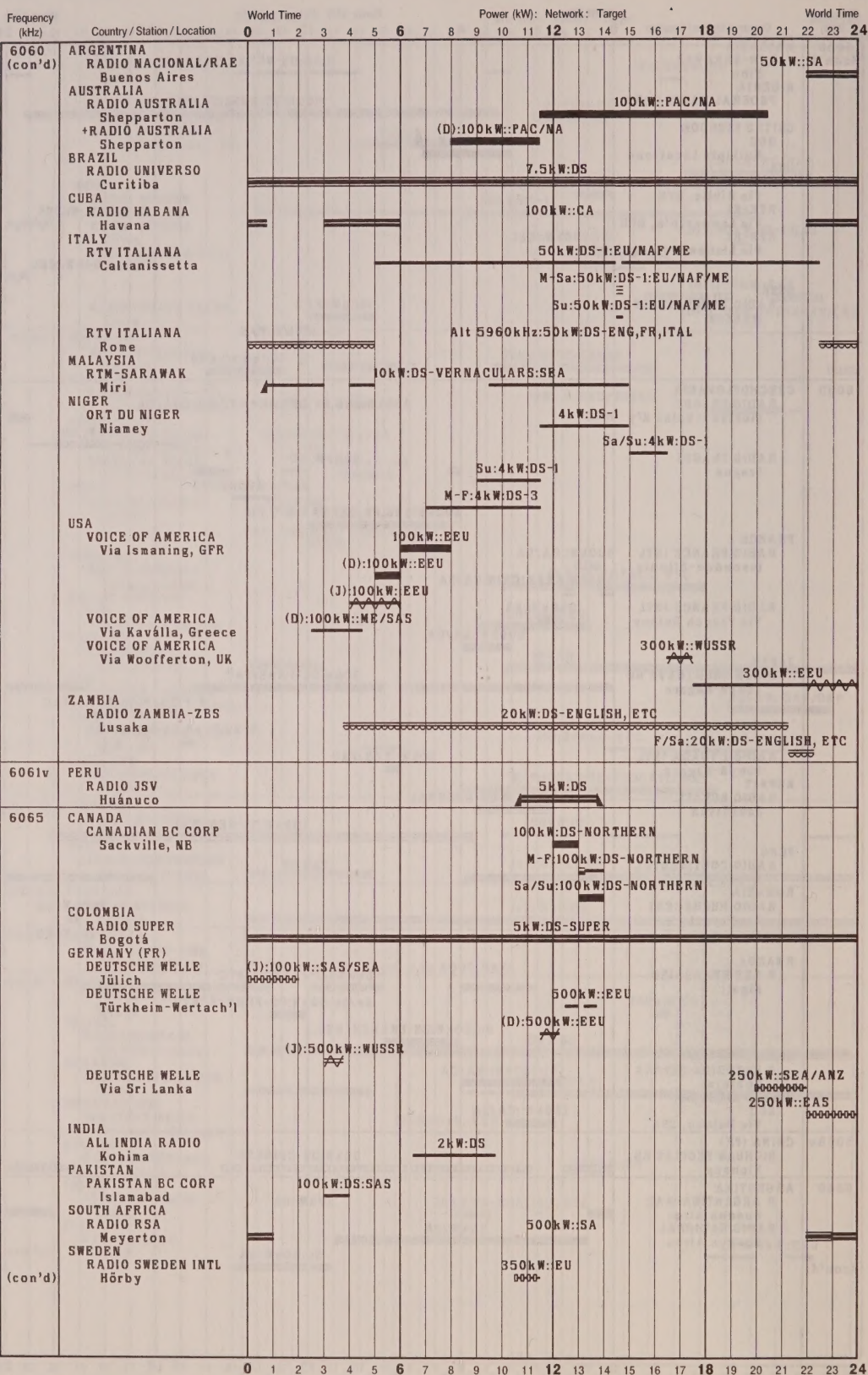
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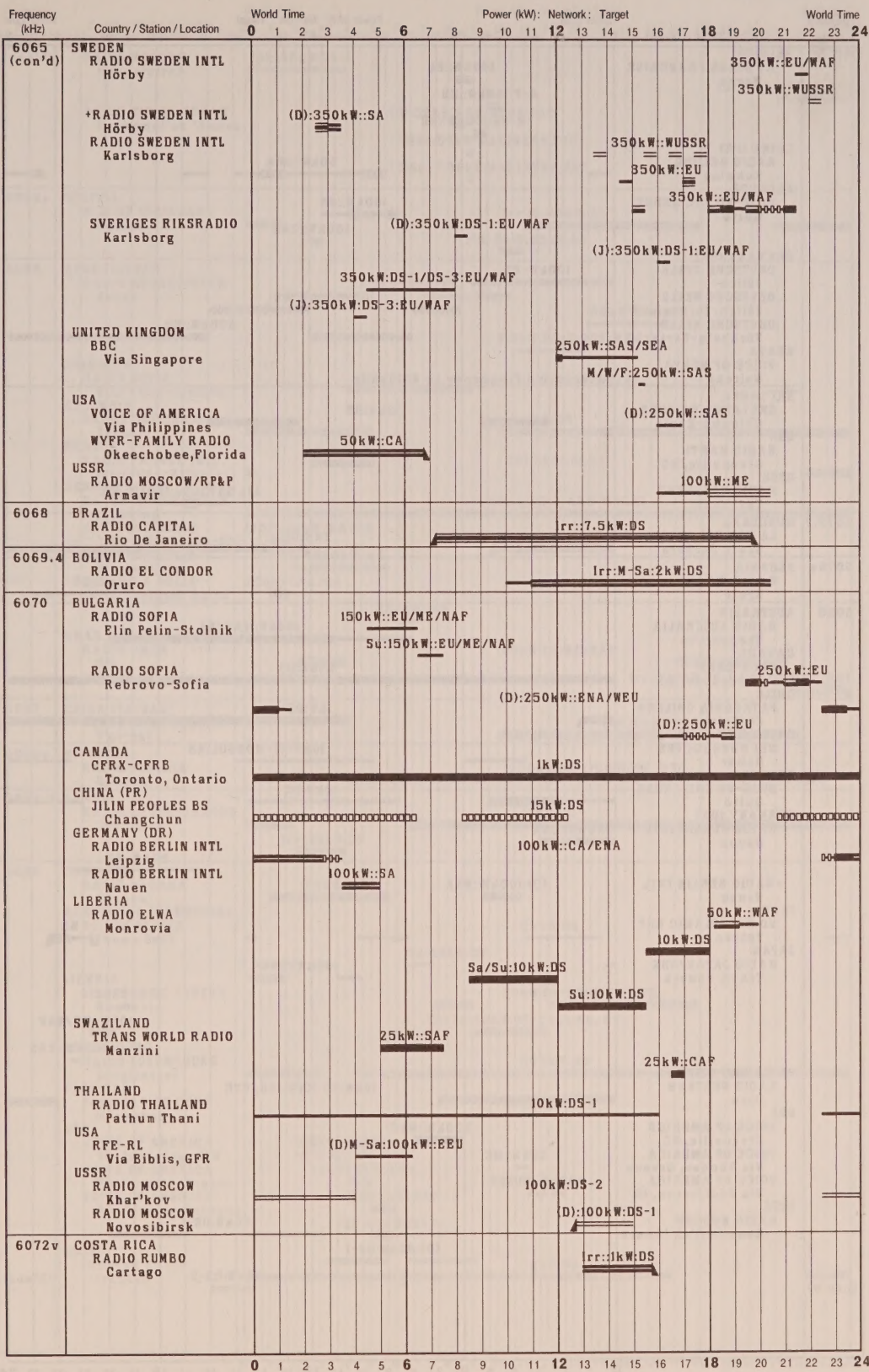
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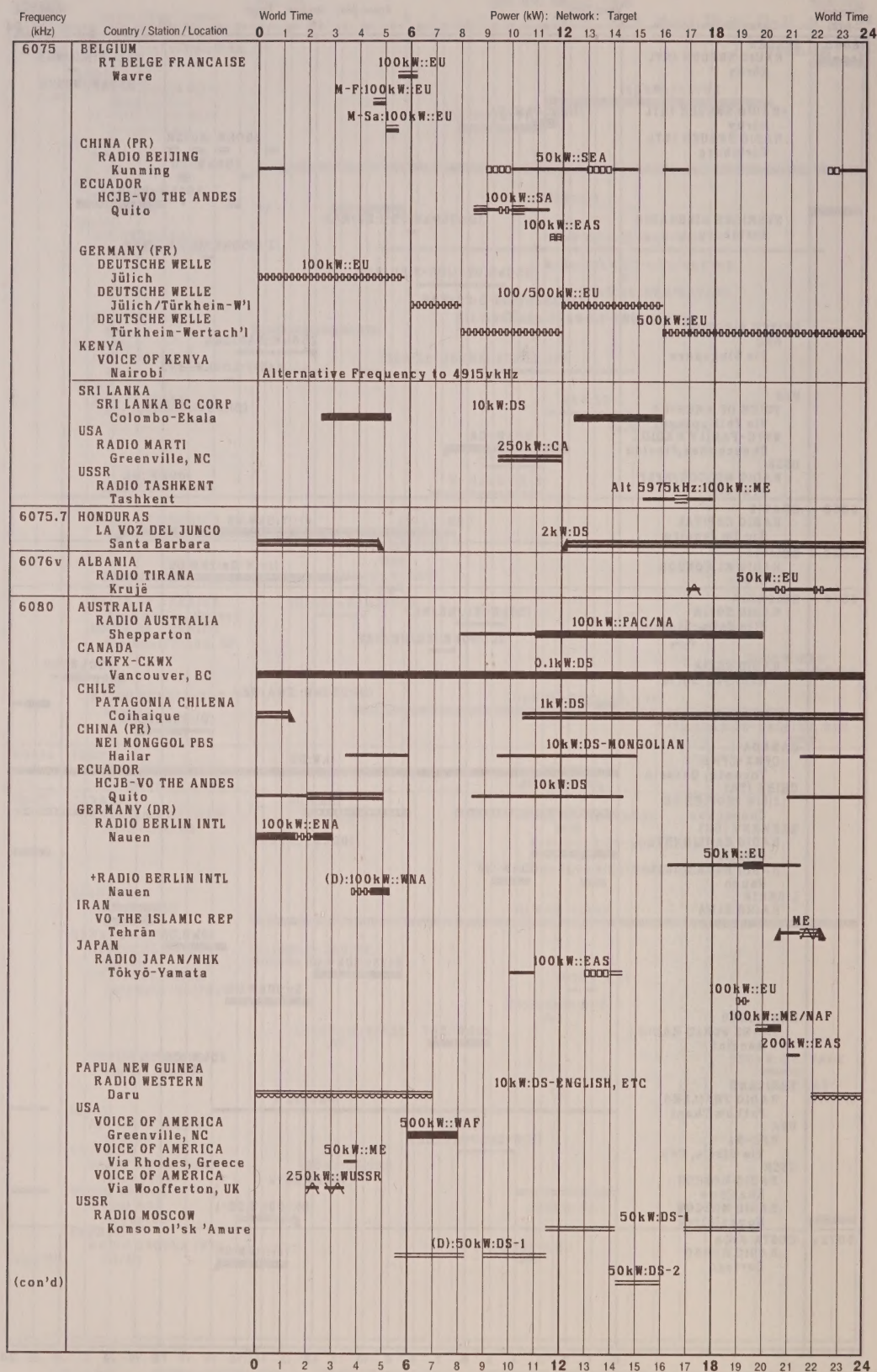
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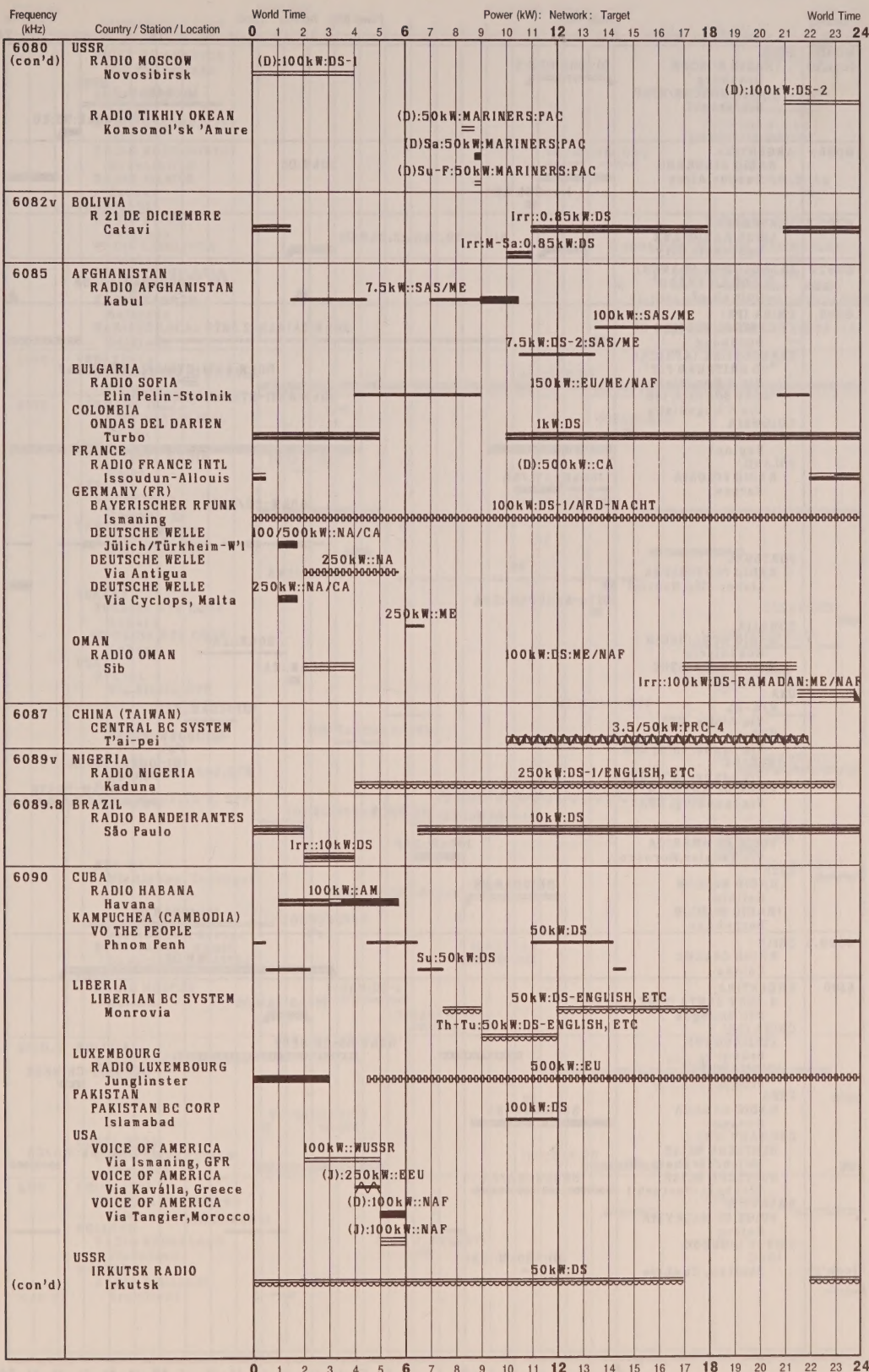
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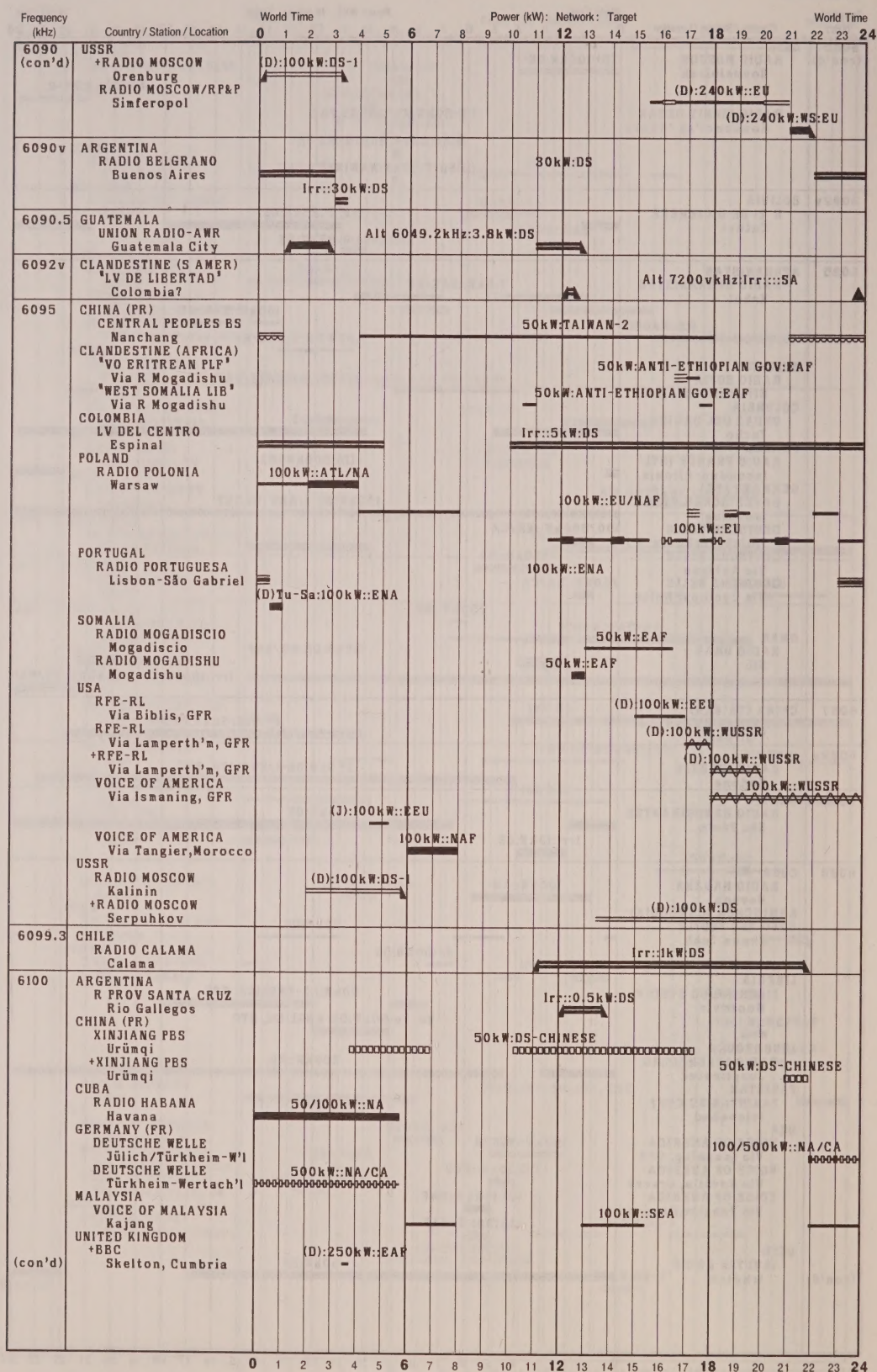


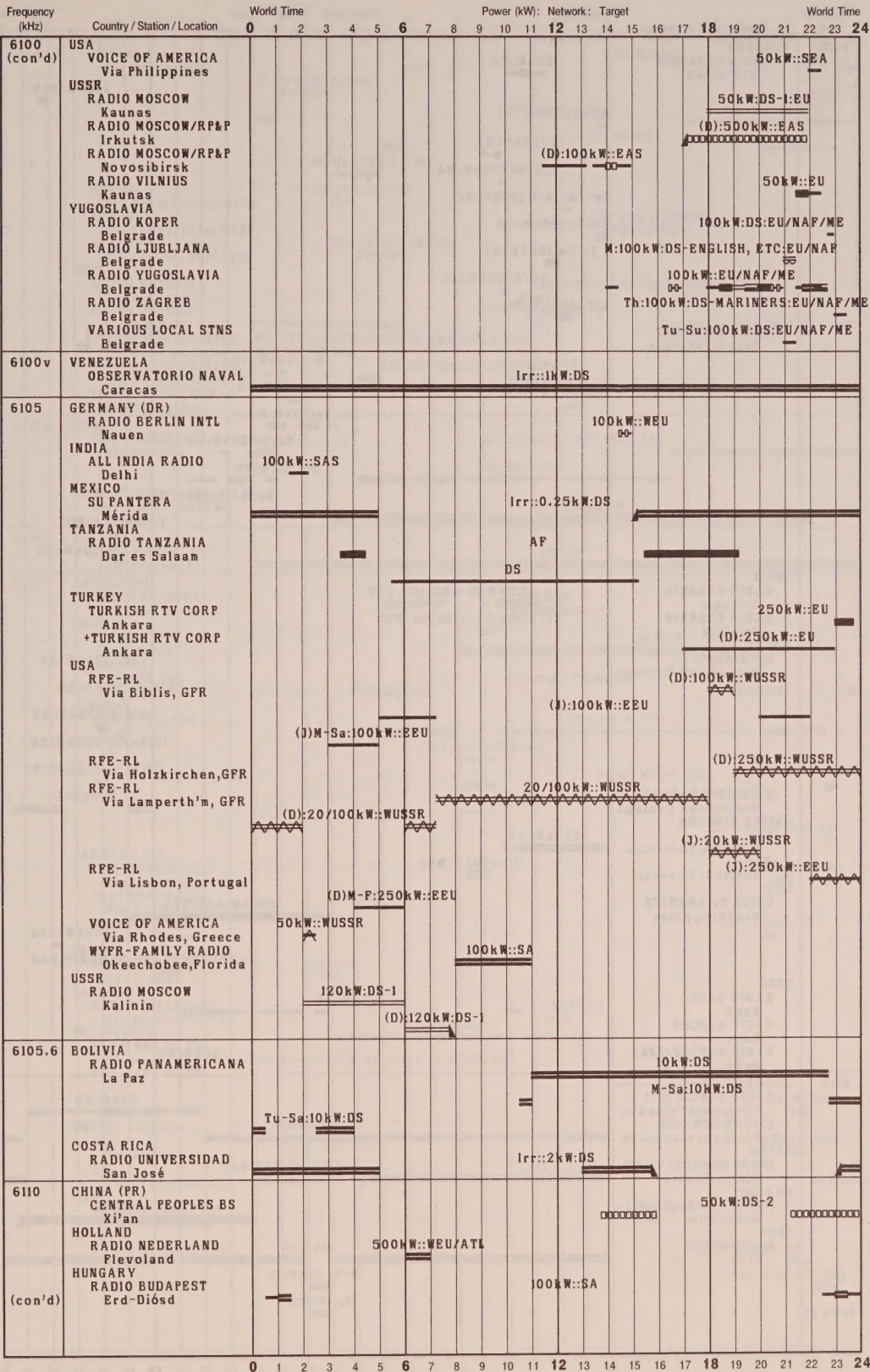


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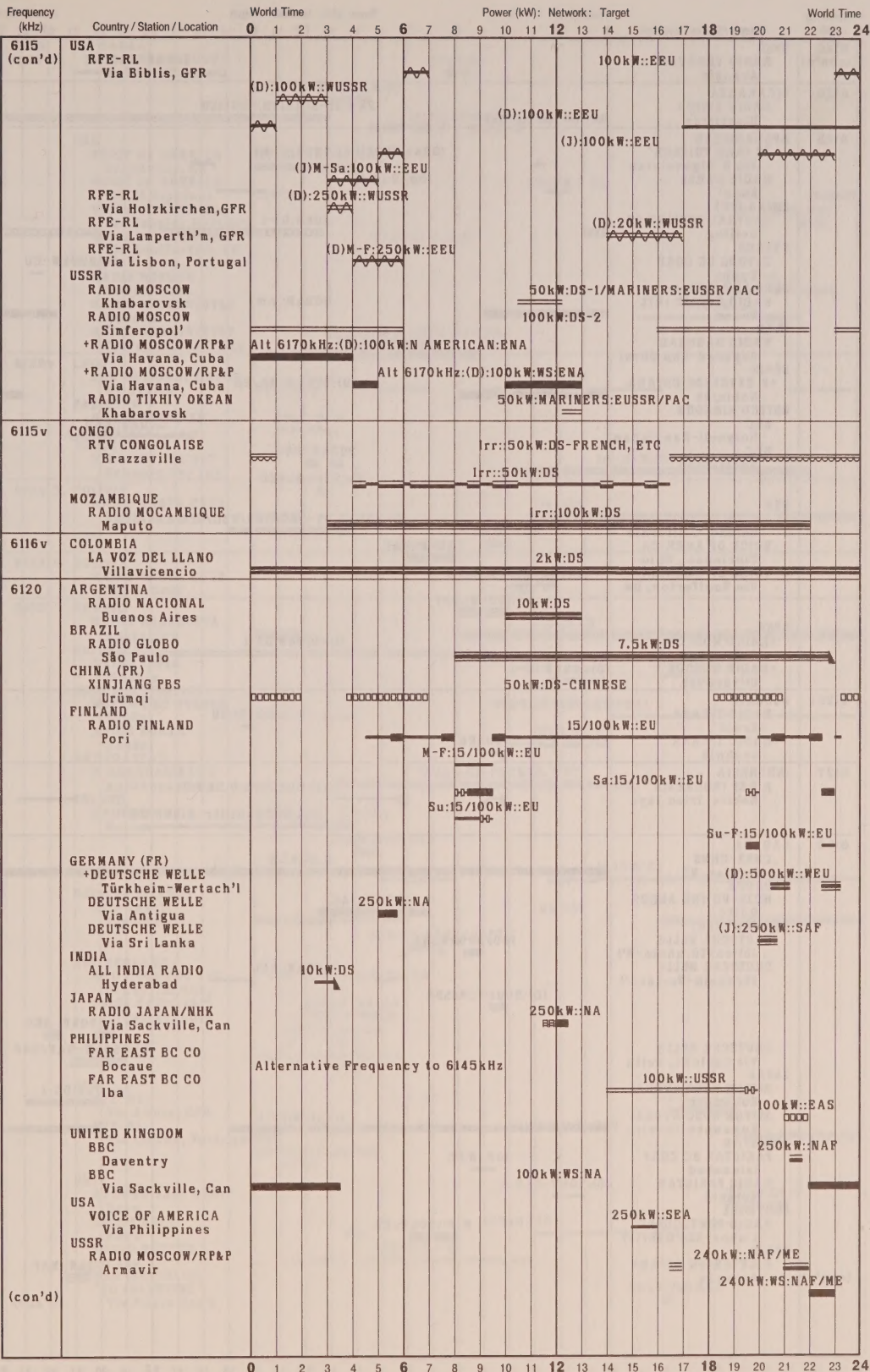




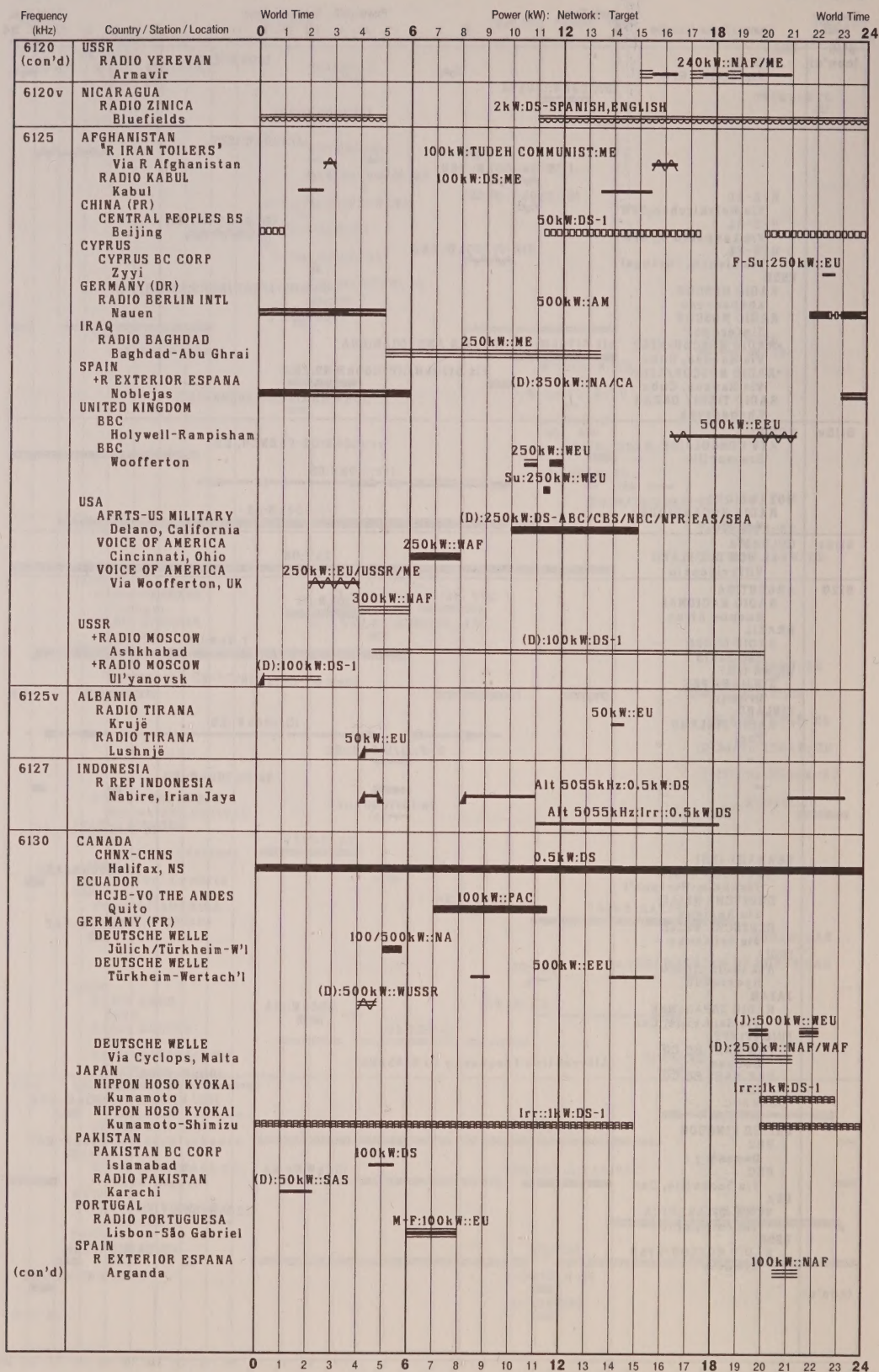
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 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time	Power (kW):	Network:	Target	World Time
		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24				
6110 (con'd)	HUNGARY RADIO BUDAPEST Erd-Diósd		100kW::NA			
					100kW::WEU	
			M:100kW::SA			
			M:100kW::NA			
			M/W/Sa:100kW::NA			
			Su-Tu/Th/F:100kW::NA			
			Tu-Su:100kW::SA			
			Tu-Su:100kW::NA			
			Tu/F:100kW::SA			
			W/Sa:100kW::NA			
	RADIO BUDAPEST Szekésfehérvár				20kW::EU	
				M-P:20kW::EU		
				M-Sa:20kW::EU		
				Sa:20kW::EU		
				Sa/Su:20kW::EU		
				Su:20kW::EU		
				Su/M/Th:20kW::EU		
					Tu/F:20kW::EU	
					W/Th/Sa-M:20kW::EU	
	INDIA RADIO KASHMIR Srinagar		7.5kW:DS-ENGLISH, ETC			
	RADIO KASHMIR Srinagar		Su:7.5kW:DS-ENGLISH, ETC			
	MALTA IBRA RADIO Maršaxlokk Cyclops				(D):250kW::EU	
					(D)M-P:250kW::EU	
					(D)M-W:250kW::EU	
					(D)Sa/Su:250kW::EU	
					(D)Th-Su:250kW::EU	
					250kW::EU	
	R MEDITERRANEAN Maršaxlokk Cyclops					
	UNITED KINGDOM BBC Multiple Locations +BBC Skelton, Cumbria		250kW::AM			
				(D):250kW::NAP		
	USA VOICE OF AMERICA Via Philippines				250kW::SAS/SEA	
					250kW::EAS	
					Su:250kW:1ST SUN OF MONTH:EAS	
	USSR RADIO BAKU Baku			50kW::ME		
	RADIO MOSCOW Baku		50kW:DS-2			
	RADIO MOSCOW/RP&P Baku				50kW::ME	
6115	GERMANY (DR) RADIO BERLIN INTL Königswusterhaue STIMME DER DDR Königswusterhaue			50kW:DS		50kW::EU
	JAPAN NIHON SHORTWAVE BC Tōkyō-Nagara			50kW:DS-2:EAS/PAC		
	MEXICO RADIO UNIVERSIDAD Hermosillo				1kW:DS	
	PERU RADIO UNION Lima			10kW:DS		
				M-Sa:10kW:DS		
				Su:10kW:DS		
(con'd)						

ENGLISH ■■■	GERMAN / DEUTSCH ■■■■	FRENCH / FRANÇAIS ■■	PORTUGUESE / PORTUGUÊS ■■	SPANISH / ESPAÑOL ■■	
ARABIC / عَرَبِي ■■	RUSSIAN / РУССКИЙ ■■	CHINESE / 中文 ■■■	JAPANESE / 日本語 ■■■■	MULTILINGUAL ■■■■	OTHER ■■
SUMMER ONLY (J)	WINTER ONLY (D)	JAMMING / 〓 or / or \	EARLIEST HEARD ▲	LATEST HEARD ▼	+ TENTATIVE

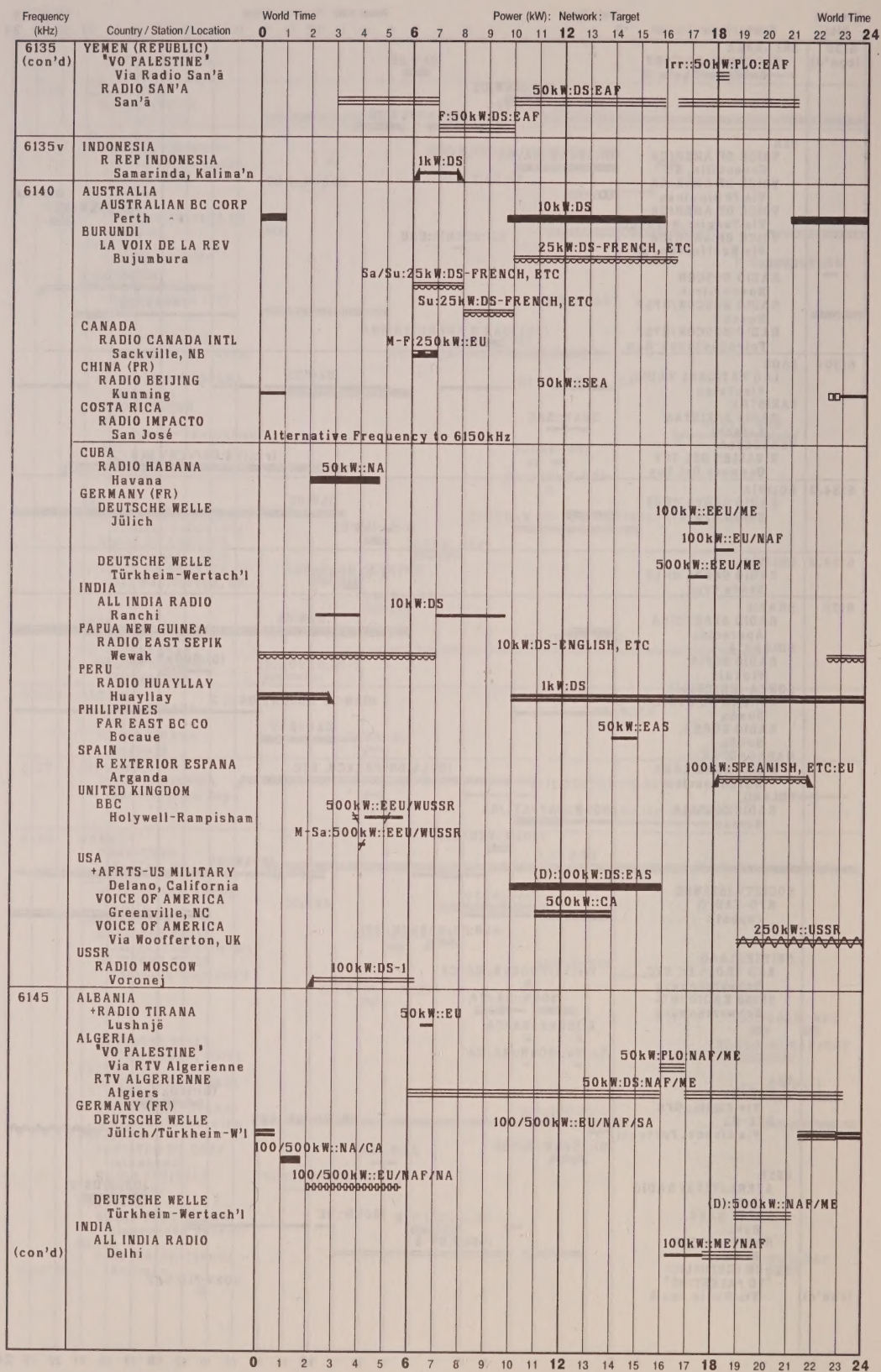


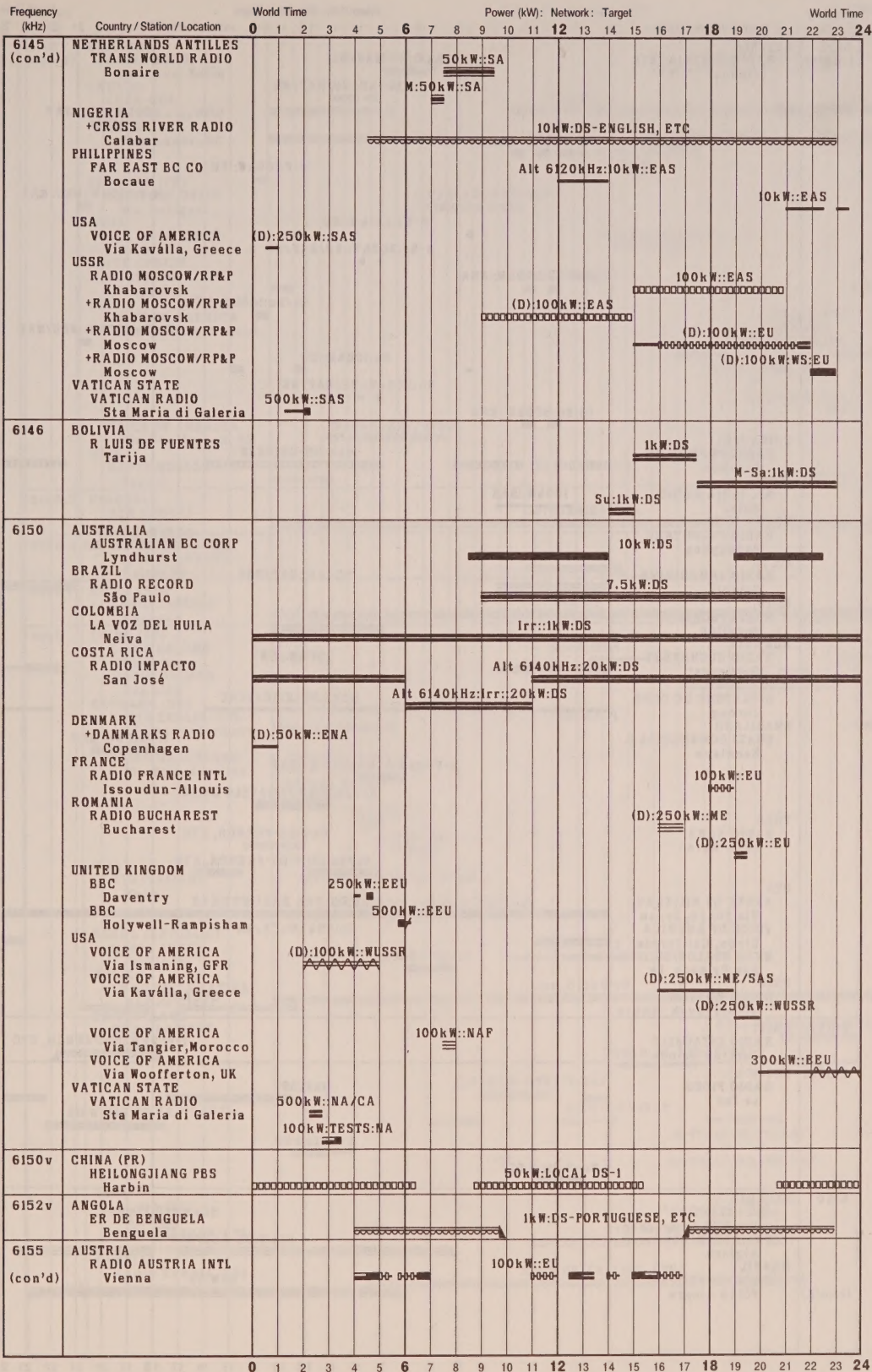
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 ARABIC / اعراس ■ RUSSIAN / РУССКИЙ ■ CHINESE / 中文 ○○○○ JAPANESE / 日本語 ■ MULTILINGUAL ■ OTHER ■
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD * TENTATIVE

ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
ARABIC / اَرَبِيَّة	RUSSIAN / РУССКИЙ	CHINESE / 中文	JAPANESE / 日本語	MULTILINGUAL
SUMMER ONLY (Y)	WINTER ONLY (D)	JAMMING (/ or \)	EARLIEST HEARD	LATEST HEARD
				+ TENTATIVE

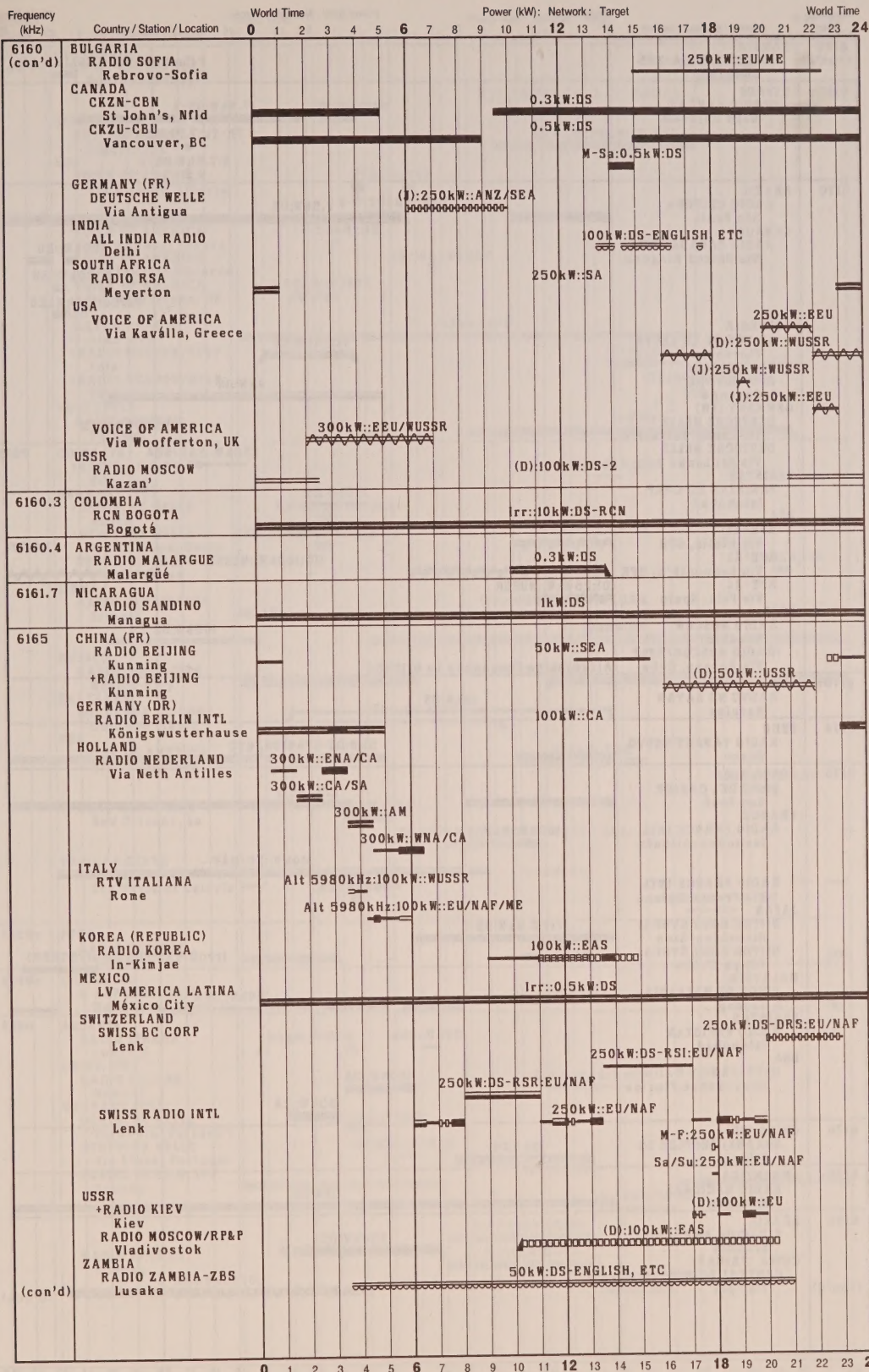




ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE

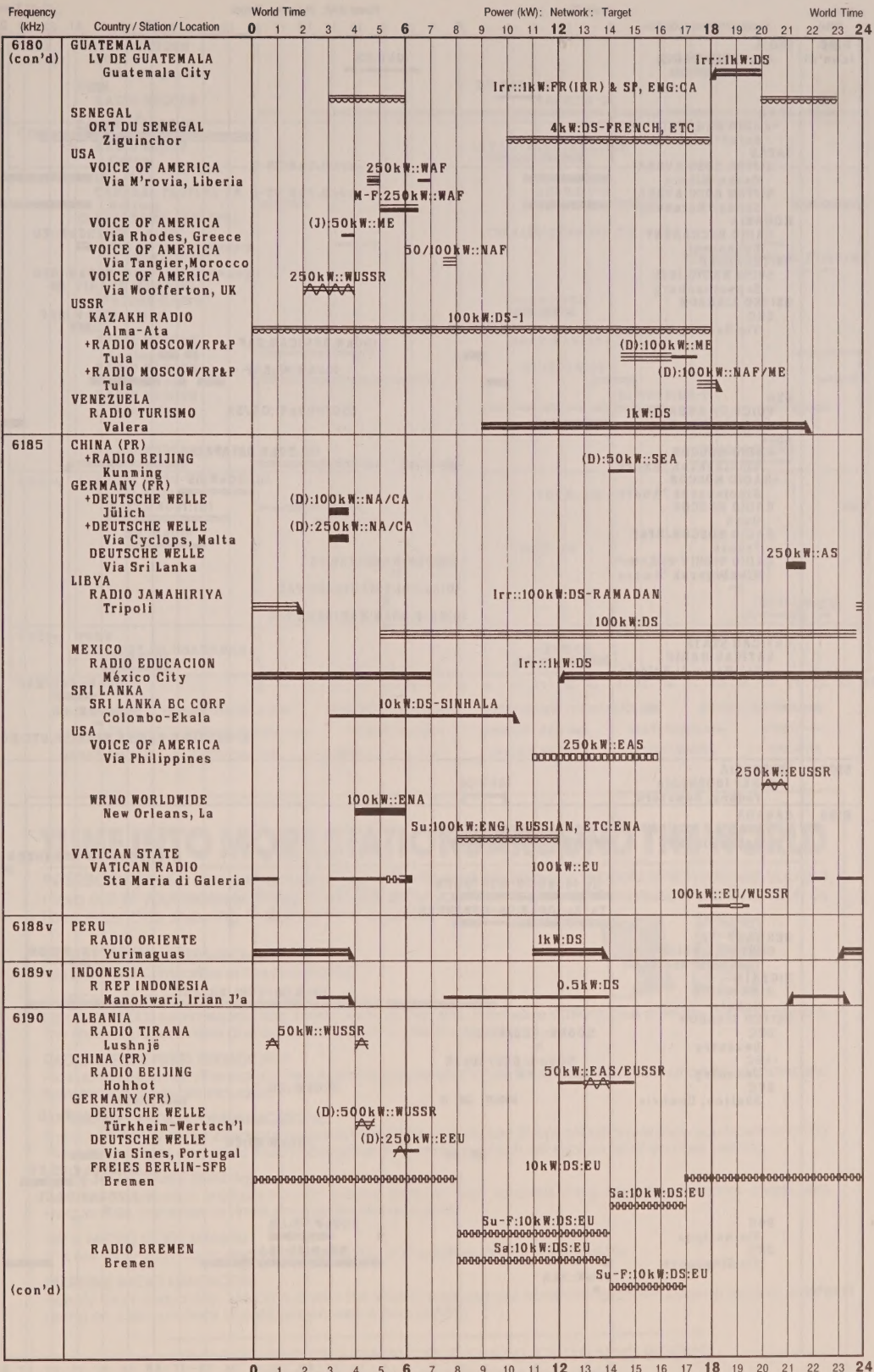
Frequency (kHz)	Country / Station / Location	World Time	Power (kW): Network: Target	World Time
0		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		
6155 (con'd)	AUSTRIA RADIO AUSTRIA INTL Vienna		500kW::EU/NAP/ME 00-0000 300kW::EU/NAP/ME 00-0000 100kW::WEU/NAP 00-0000 M-F:100kW::EU 00-0000 M-F:100kW::WEU/NAP 00-0000 M-Sa:100kW::EU 00-0000 M-Sa:300kW::EU/NAP/ME 00-0000 (D)M-Sa:500kW::ENA 00-0000 Sa/Su:100kW::EU 00-0000 Su:100kW::EU 00-0000 Su:300kW::EU/NAP/ME 00-0000 (D)Su:500kW::ENA 00-0000	
	CHINA (PR) GANSU PEOPLES BS Lanzhou		15kW:DS-CHINESE	
	INDIA ALL INDIA RADIO Delhi		100kW::SAS	
	KOREA (DPR) RADIO PYONGYANG Pyongyang		200kW::ME/AF	
	LIBYA RADIO JAMAHIRIYA Tripoli		500kW::NAP/WAF	
	PERU RADIO PUCALLPA Pucallpa		1kW:DS	
	ROMANIA RADIO BUCHAREST Bucharest		250kW::AM	
	SINGAPORE SINGAPORE BC CORP Jurong		50kW:DS-2:SEA/PAC	
	SWAZILAND SWAZI COMMERCIAL R Sandlane		M-F:10kW::PARALELO 27:SAP Sa/Su:10kW::PARALELO 27:SAP 10kW:DS-FRENCH, ETC Sa/Su:10kW:DS-FRENCH, ETC 10kW:DS-FAR EAST NET:EAS	
	TOGO RADIO KARA Lama-Kara		(D):250kW::CA/SA	
	USA AFPTS-US MILITARY Via Tokyo, Japan VOICE OF AMERICA Dixon, California WRNO WORLDWIDE New Orleans, La		Su:100kW::ENA	
	USSR RADIO MOSCOW Nikolayevsk 'Amure		50kW:DS-2	
6155v	HAITI RADIO CITADELLE Port-au-Prince		1kW:DS Irr::2kW:DS-FRENCH, ETC	
6155.2	BOLIVIA RADIO FIDES La Paz		1kW:DS Irr::1kW:DS M-Sa:1kW:DS	
			Tu-Su:1kW:DS	
6160 (con'd)	ALGERIA "VO PALESTINE" Via RTV Algerienne RTV ALGERIENNE Algiers BRAZIL RADIO PAMPA Porto Alegre		50kW:PLO EU/NAP 50kW:DS-1:EU/NAP 5kW:DS	

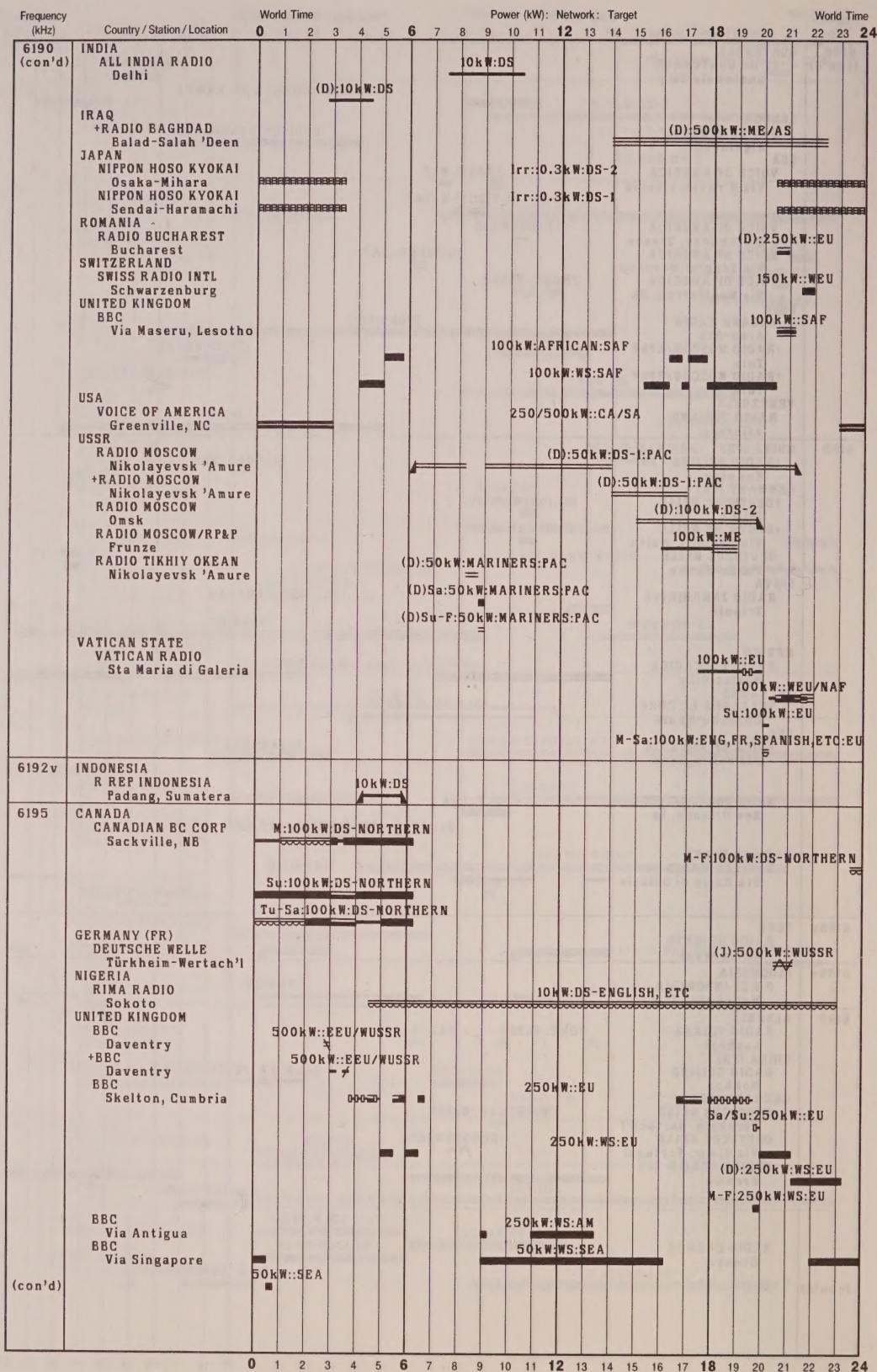
ENGLISH ■■■ GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / ٠٠٠ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文字 0000 JAPANESE / 日本語 ■■■ MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

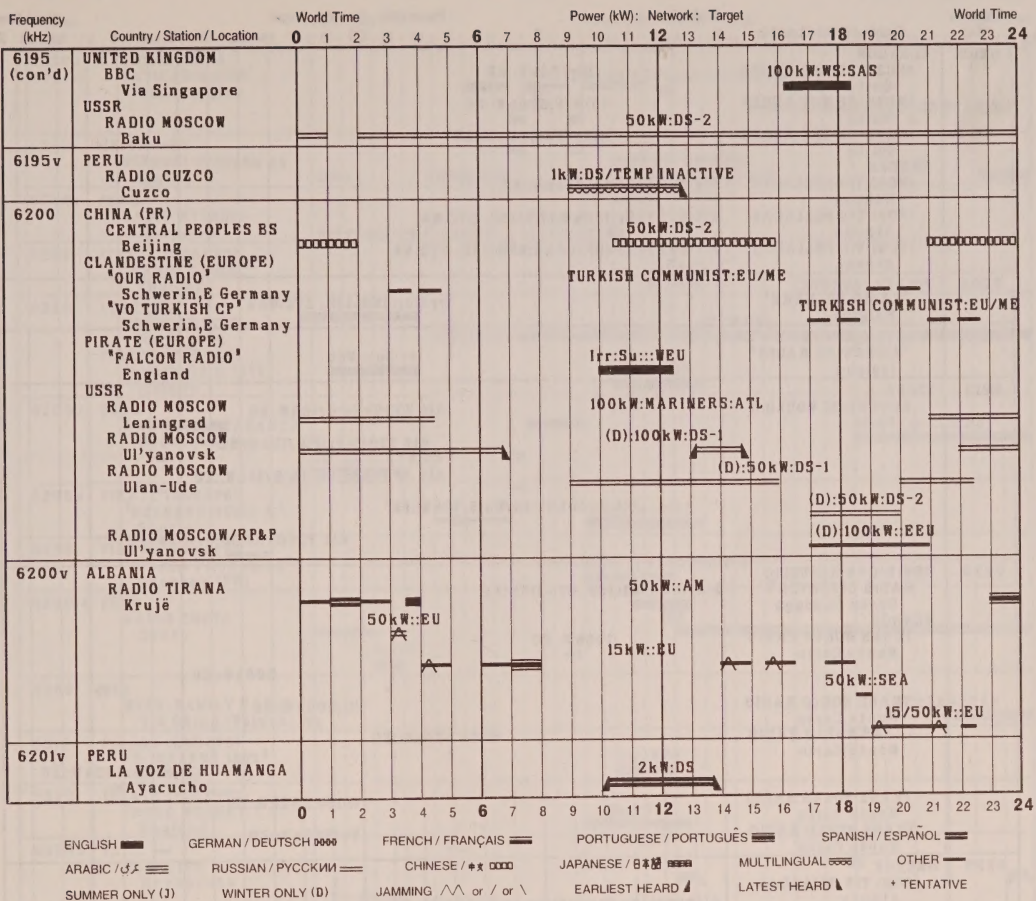


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ARABIC / عَرَبِي ■■	RUSSIAN / РУССКИЙ ■■	CHINESE / 中文 ■■■	JAPANESE / 日本語 ■■■■	MULTILINGUAL ■■■■	OTHER ■■
SUMMER ONLY (J)	WINTER ONLY (D)	JAMMING / 〽 or / or \	EARLIEST HEARD ▲	LATEST HEARD ▼	+ TENTATIVE







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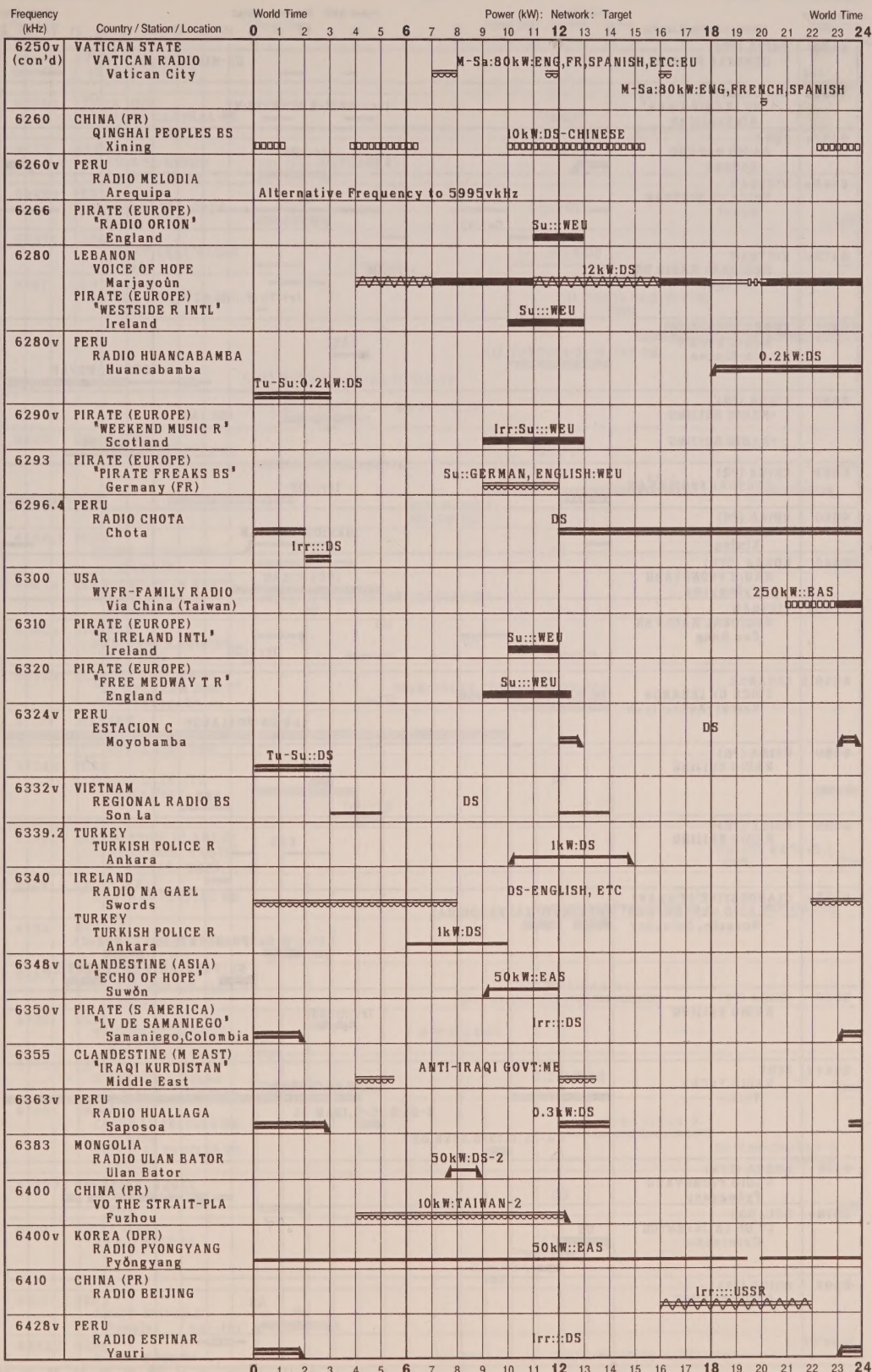
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Frequency (kHz)	Country / Station / Location	World Time	Power (kW)	Network	World Time
		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24			
6205	ECUADOR +HCJB-VO THE ANDES Quito +HCJB-VO THE ANDES Quito +HCJB-VO THE ANDES Quito GREECE +FONI TIS HELLADAS Athens +FONI TIS HELLADAS Athens +FONI TIS HELLADAS Athens	 (D):500kW::EU (D)M-F:500kW::EU (D)Sa/Su:500kW::EU Alt 6225kHz:(D):100kW::NA Alt 6225kHz:100kW:ENGLISH, ETC:NA Alt 6225kHz:(D):100kW:ENGLISH, ETC:NA			
6206	PIRATE (EUROPE) "RADIO DELMAR" Belgium			Irr:Suu:ENGLISH, ETC:WEU	
6210	PIRATE (EUROPE) "RIVERSIDE RADIO" Ireland			Irr:Suu:WEU	
6215	ITALY ADVENTIST WORLD R Forlì	 Alt 7300kHz:6/10kW::EU Alt 7300kHz:F:6/10kW::EU Alt 7300kHz:Sa-Th:6/10kW::EU Alt 7300kHz:Su:6/10kW::EU			
6220	DOMINICAN REPUBLIC RADIO DISCOVERY Santo Domingo MONACO TRANS WORLD RADIO Monte Carlo +TRANS WORLD RADIO Monte Carlo TRANS WORLD RADIO Monte Carlo +TRANS WORLD RADIO Monte Carlo TRANS WORLD RADIO Monte Carlo	 0.5/1kW:ENGLISH, SPANISH:AM 100kW::EU 500kW::EU D:500kW::EU M-Sa:500kW::EU M-Th:500kW::EU (D)Sa:500kW::EU Su:500kW::EU			
6225	GREECE +FONI TIS HELLADAS Athens	Alternative Frequency to 6205kHz			
6230	CLANDESTINE (C AMER) "RADIO MONIMBO" ECUADOR HCJB-VO THE ANDES Quito PIRATE (EUROPE) "EAST COAST COMML" United Kingdom	 Irr::ANTI-SANDINIST:CA 100/500kW::NA/CA Irr:Suu:WEU			
6240	BANGLADESH RADIO BANGLADESH Dhaka CLANDESTINE (N AMER) "VO TO-MORROW" Eastern USA PIRATE (EUROPE) "RADIO RAINBOW" Ireland	 250kW::EU Alt 7410kHz:Irr:1kW:US NEO-NAZI PARTY:ENA Su::WEU			
6240v	CLANDESTINE (AFRICA) "ERITREAN MASSES" Argadom, Ethiopia "VO THE TIGRE REV" Argadom, Ethiopia	 PLF OF ERITREA:EAF Tu/Th/Su:PLF OF ERITREA:EAF			
6243v	PERU RADIO MUNICIPAL Calca	 DS			
6249.6	EQUATORIAL GUINEA RADIO NACIONAL Malabo	 10kW:DS-SPANISH, ETC			
6250v	KOREA (DPR) RADIO PYONGYANG Pyongyang VATICAN STATE VATICAN RADIO Vatican City	 50/100kW::EAS 80kW::EU Su:80kW::EU Th:80kW::EU			

ENGLISH ■■■	GERMAN / DEUTSCH ■■■■	FRENCH / FRANÇAIS ■■■■	PORTUGUESE / PORTUGUÊS ■■■■	SPANISH / ESPAÑOL ■■■■
ARABIC / عَرَبِي ■■■■	RUSSIAN / РУССКИЙ ■■■■	CHINESE / 中文 ■■■■	JAPANESE / 日本語 ■■■■	MULTILINGUAL ■■■■
SUMMER ONLY (J)	WINTER ONLY (D)	JAMMING / 〽 or / or \	EARLIEST HEARD ▲	LATEST HEARD ▼
				+ TENTATIVE

† TENTATIVE



ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ٠١٢٣٤٥٦٧٨٩٠ — RUSSIAN / РУССКИЙ — CHINESE / 中 国 人 — JAPANESE / 日 本 人 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6430	CHINA (PR) CENTRAL PEOPLES BS																									
6430v	CLANDESTINE (M EAST) +'VO IRANIAN REV' Afghanistan																									
6437v	PERU RADIO HUAYNO Bodega																									
6446v	VIETNAM VOICE OF VIETNAM Hanoi																									
6473v	VIETNAM REGIONAL RADIO BS Lai Chau																									
6485	KOREA (REPUBLIC) RADIO KOREA In-Kimjae																									
6490	CHINA (PR) +RADIO BEIJING +RADIO BEIJING																									
6493	CHINA (PR) CENTRAL PEOPLES BS																									
6500	CHINA (PR) QINGHAI PEOPLES BS Xining																									
6540	KOREA (DPR) RADIO PYONGYANG Pyongyang																									
6543v	VIETNAM REGIONAL RADIO BS Cao Bang																									
6548.S	LEBANON VOICE OF LEBANON Beirut-Ashrafiyah																									
6550	CHINA (PR) RADIO BEIJING																									
6555	CHINA (PR) RADIO BEIJING																									
6555v	CLANDESTINE (C AMER) 'RADIO VENCEREMOS' Morazan, Salvador																									
6560	CHINA (PR) RADIO BEIJING																									
6564v	PERU RADIO TACNA Tacna																									
6576	KOREA (DPR) RADIO PYONGYANG Pyongyang																									
6578v	ECUADOR LV DE LA JUVENTUD Catacocha																									
6590	CHINA (PR) RADIO BEIJING																									
(con'd)																										

ENGLISH ■■■ GERMAN / DEUTSCH ■■■■ FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■

ARABIC / اَرَبِي ■■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 ■■■■ JAPANESE / 日本語 ■■■■ MULTILINGUAL ■■■■ OTHER ■■■

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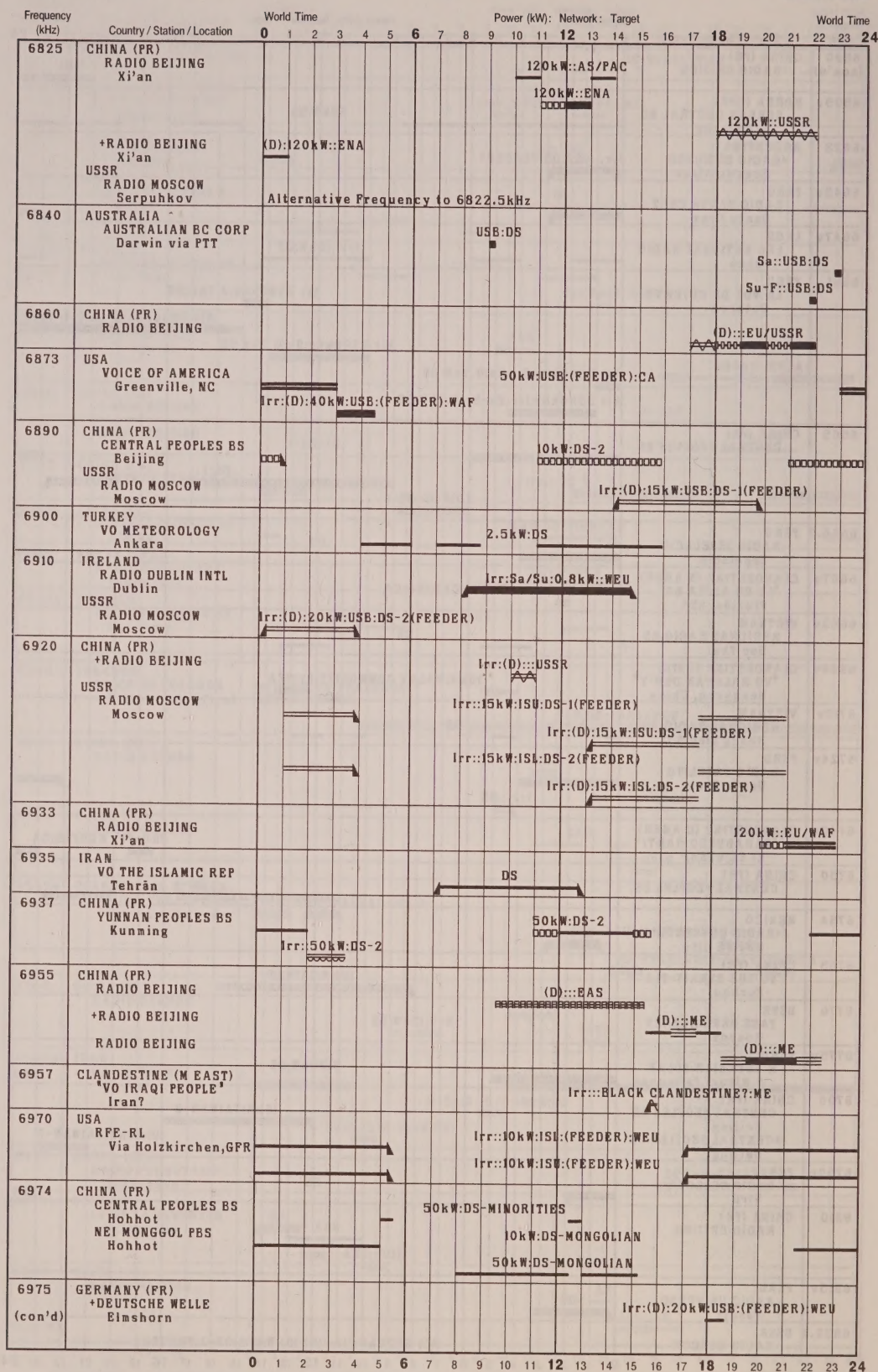
+ TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time						Power (kW): Network: Target																		World Time	
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
6590 (con'd)	CHINA (PR) +RADIO BEIJING																										
6599v	KOREA (DPR) KOREAN CENTRAL BS Pyongyang	 50kW:DS																									
6623	ARGENTINA +RADIO EL MUNDO Buenos Aires	 Irr::USB:DS(FEEDER)																									
6645v	PERU RADIO SANTA CRUZ Santa Cruz	 Irr::DS																									
6647v	LAOS LAO NATIONAL RADIO Paksé	 Irr::1QkW:DS																									
6661	PERU LA VOZ DE CUTERVO Cutervo	 Alt 3390kHz:TU-Su:0.7kW:DS Alt 3390kHz:N-Sa:0.7kW:DS Alt 3390kHz:Sa:0.7kW:DS																									
6665	CHINA (PR) CENTRAL PEOPLES BS	 (D)::DS-I DS-I (D)W-M::DS-I																									
6666.7	PERU RADIO JEPELACIO Jepelacio	 DS																									
6667v	CLANDESTINE (N AMER) 'LV DE ALPHA 66' Florida, USA	 Irr:TU/Th/Sa:1kW:ANTI-CASTRO:CA																									
6685v	VIETNAM REGIONAL RADIO BS Bac Thai	 DS																									
6699v	CLANDESTINE (ASIA) 'VO MALAYAN DEM'y' Hengyang, China	 10kW:MALAY COMMUNIST PY:SEA																									
6710v	VIETNAM REGIONAL RADIO BS Hoang Lien Son	 DS																									
6724v	PERU RADIO SATELITE Santa Cruz	 DS																									
6740v	CLANDESTINE (C AMER) 'FARABUNDO MARTI' El Salvador	 PRO-FPL REBELS:CA																									
6750	CHINA (PR) CENTRAL PEOPLES BS																										
6754	MEXICO +RADIO CONSENTIDA México City	 SPR:DS																									
6765	CHINA (PR) VO THE STRAIT-FLA Fuzhou	 10kW:TAIWAN-1																									
6770	USSR TASS NEWS AGENCY Moscow	 M+F:15kW:DS																									
6775v	PERU R ESTRELLA POLAR S Miguel Pallaques	 0.25kW:DS																									
6790	CHINA (PR) CENTRAL PEOPLES BS Beijing +CENTRAL PEOPLES BS Beijing	 10kW:TAIWAN-2 (D):10kW:TAIWAN-2																									
6790v	PERU RADIO SELECTA Virá	 DS																									
6810	CHINA (PR) RADIO BEIJING	 (D):::SEA SEA																									
6815v	PERU RADIO UNIVERSO Pasaje	 DS																									
6822.5	USSR RADIO MOSCOW	 Alt 6825kHz:Iqr:(D):15kW:USB:DS-2(FEEDER)																									

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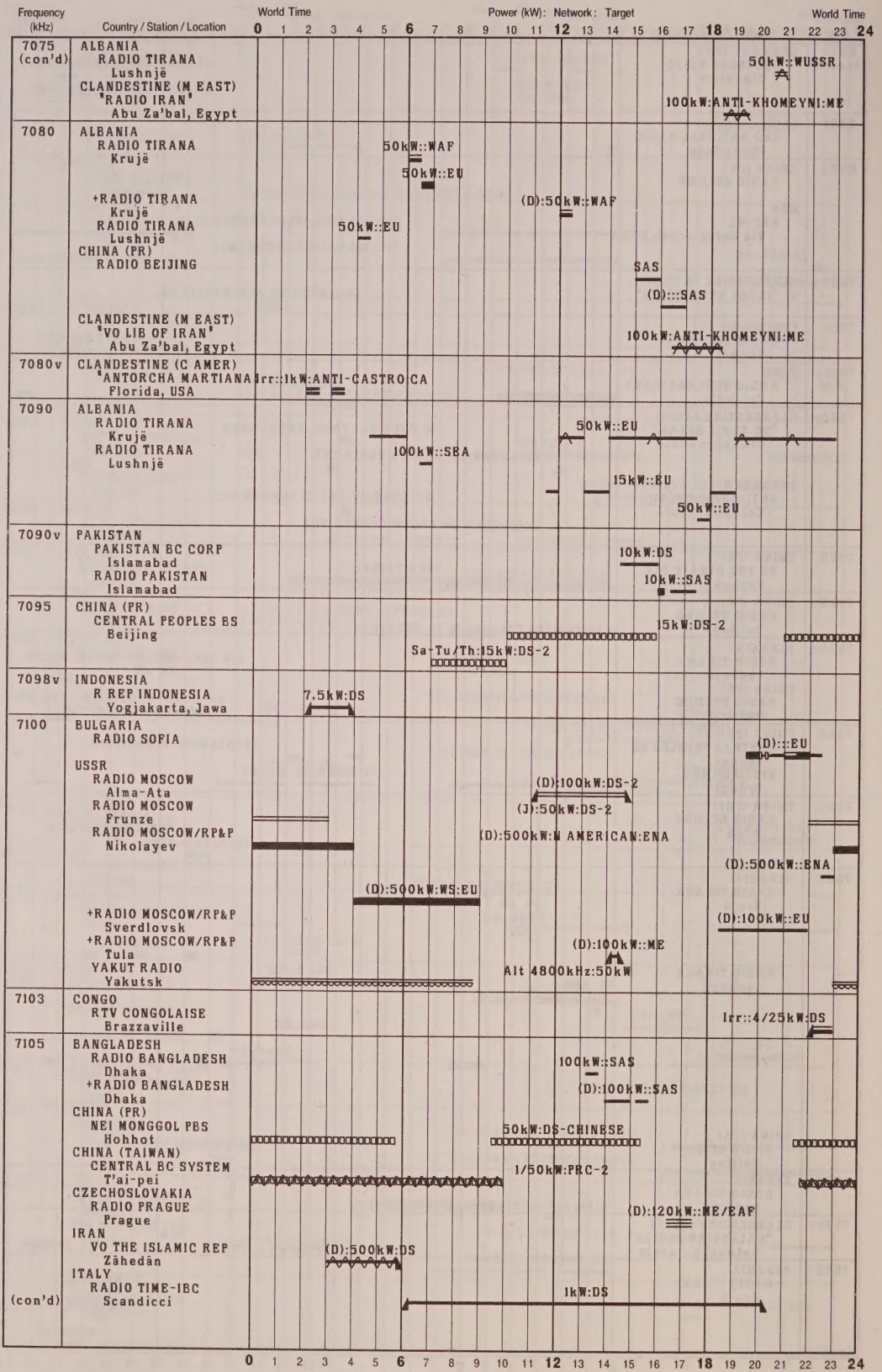
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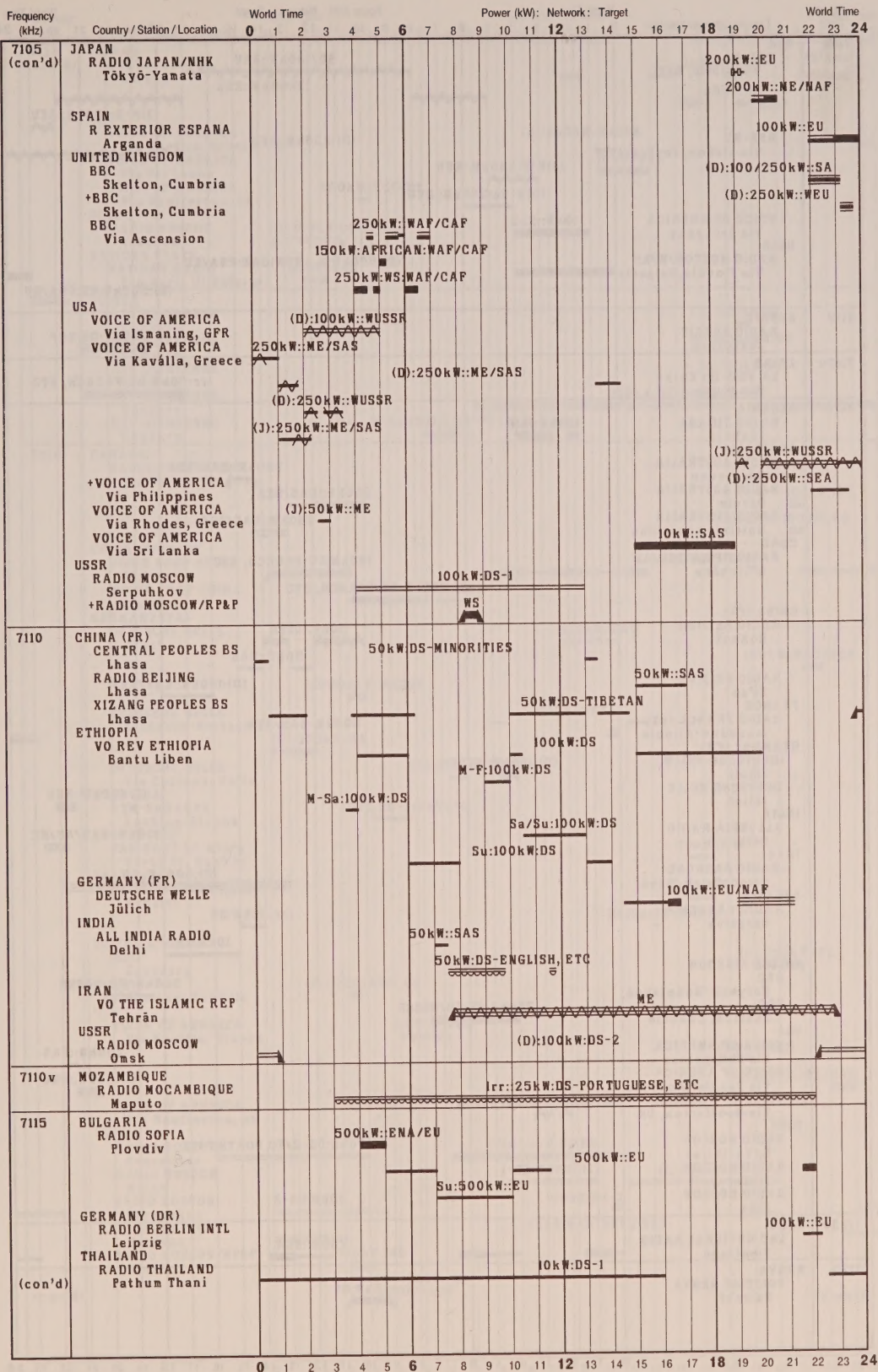
SUMMER ONLY (J) WINTER ONLY (D) JAMMING  or / or \ EARLIEST HEARD  LATEST HEARD  + TENTATIVE



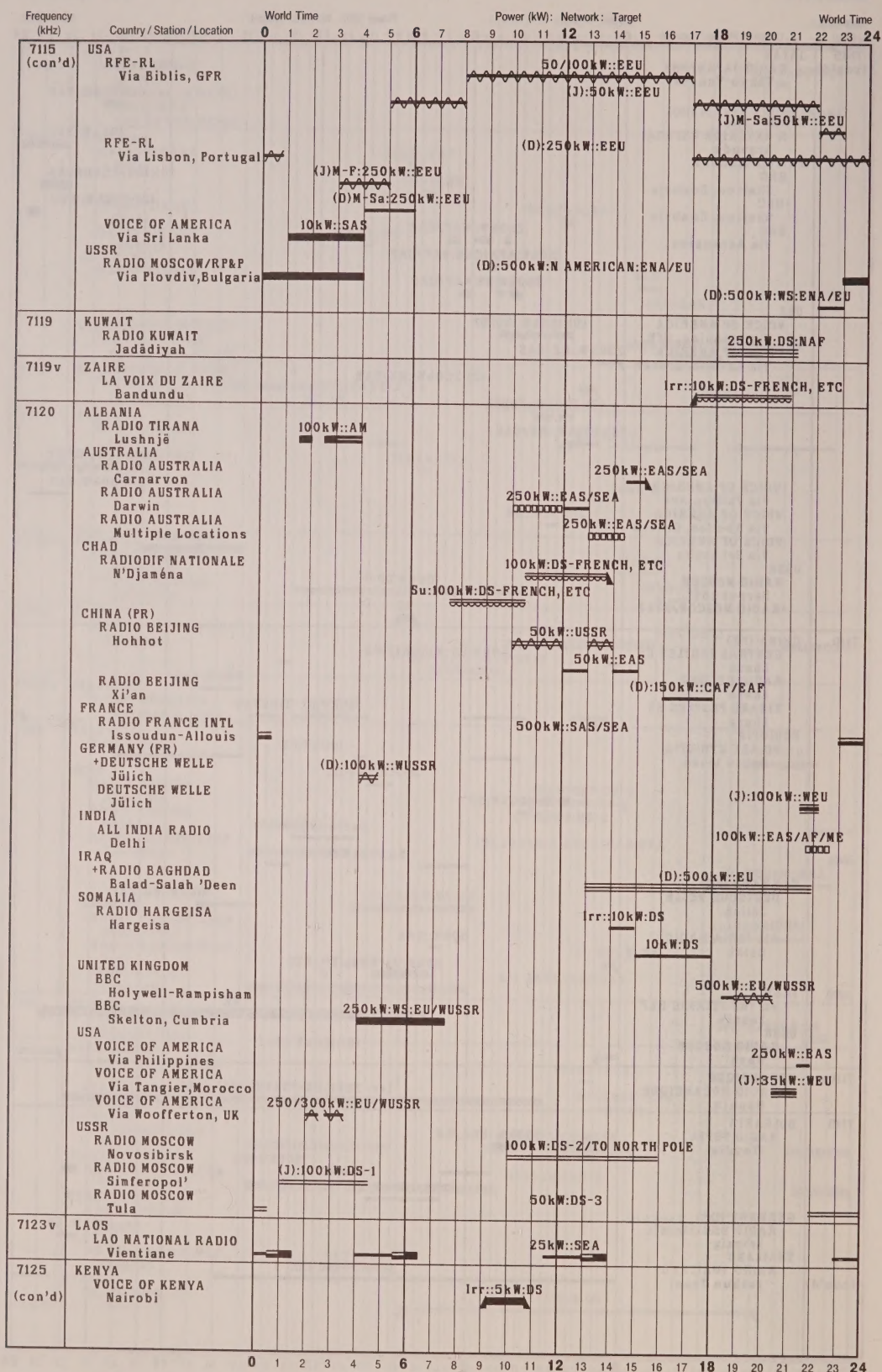
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Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																						World Time
6975 (con'd)	GERMANY (FR) DEUTSCHE WELLE Elmshorn																							(D):20kW:USB:(FEEDER):WEU (J):20kW:USB:(FEEDER):WEU
6981	LAOS LAO NATIONAL RADIO Phong Saly																							
6995	CHINA (PR) RADIO BEIJING USA RFE-RL Via Holzkirchen,GFR																							(D)::AF/EU Irr::10kW:IS:(FEEDER):WEU Irr::10kW:IS:(FEEDER):WEU
7005v	CLANDESTINE (M EAST) "IRAQI REVOLUTION"																							Irr::KURDISH SEPARATIST:ME
7010	CHINA (PR) RADIO BEIJING Kunming																							(D):120kW::EEU/USSR
7010v	PERU RADIO SUDAMERICANA Celendin																							0.05kW:DS
7020v	CLANDESTINE (ASIA) "VO TAMIL EELAM" Southern India SRI LANKA ANTI-TAMIL EELAM Colombo-Ekala																							M-P:1kW:SRI TAMIL REBELS:SAS Sa/Su:1kW:SRI TAMIL REBELS:SAS M-P:10kW:DE FACTO JAMMER:SAS Sa/Su:10kW:DE FACTO JAMMER:SAS
7025	CHINA (PR) VO THE STRAIT-PLA Fuzhou																							10kW:TAIWAN-2
7025v	CHINA (PR) RADIO BEIJING Beijing																							Alternative Frequency to 7035vkHz
7035v	ALBANIA RADIO TIRANA Lushnjë CHINA (PR) RADIO BEIJING Beijing																							Alt 7065vkHz:50/100kW::WUSSR Alt 7025vkHz:120kW::USSR/EU
7050	CHINA (PR) CENTRAL PEOPLES BS Urūmqi XINJIANG PBS Urūmqi																							(J):50kW:DS-MINORITIES (J):50kW:DS-UIGHUR
7055	CHINA (PR) RADIO BEIJING Xi'an																							120kW::EU/NAF (D):120kW::USSR
7065	ALBANIA RADIO TIRANA Krujë RADIO TIRANA Lushnjë CHINA (PR) RADIO BEIJING Beijing																							50kW::WUSSR 50kW::ME 100kW::AM 50kW::EU 50kW::EU 50kW::EU 50kW::WUSSR 100kW::ME 100kW::SAS
7065v	ALBANIA RADIO TIRANA Lushnjë																							Alternative Frequency to 7035vkHz
7070v	CLANDESTINE (ASIA) "MALAYSIAN PEOPLE" Betong, Malaysia																							SEA
7075 (con'd)	ALBANIA RADIO TIRANA Krujë																							50kW::AF 50kW::ME 50kW::EU

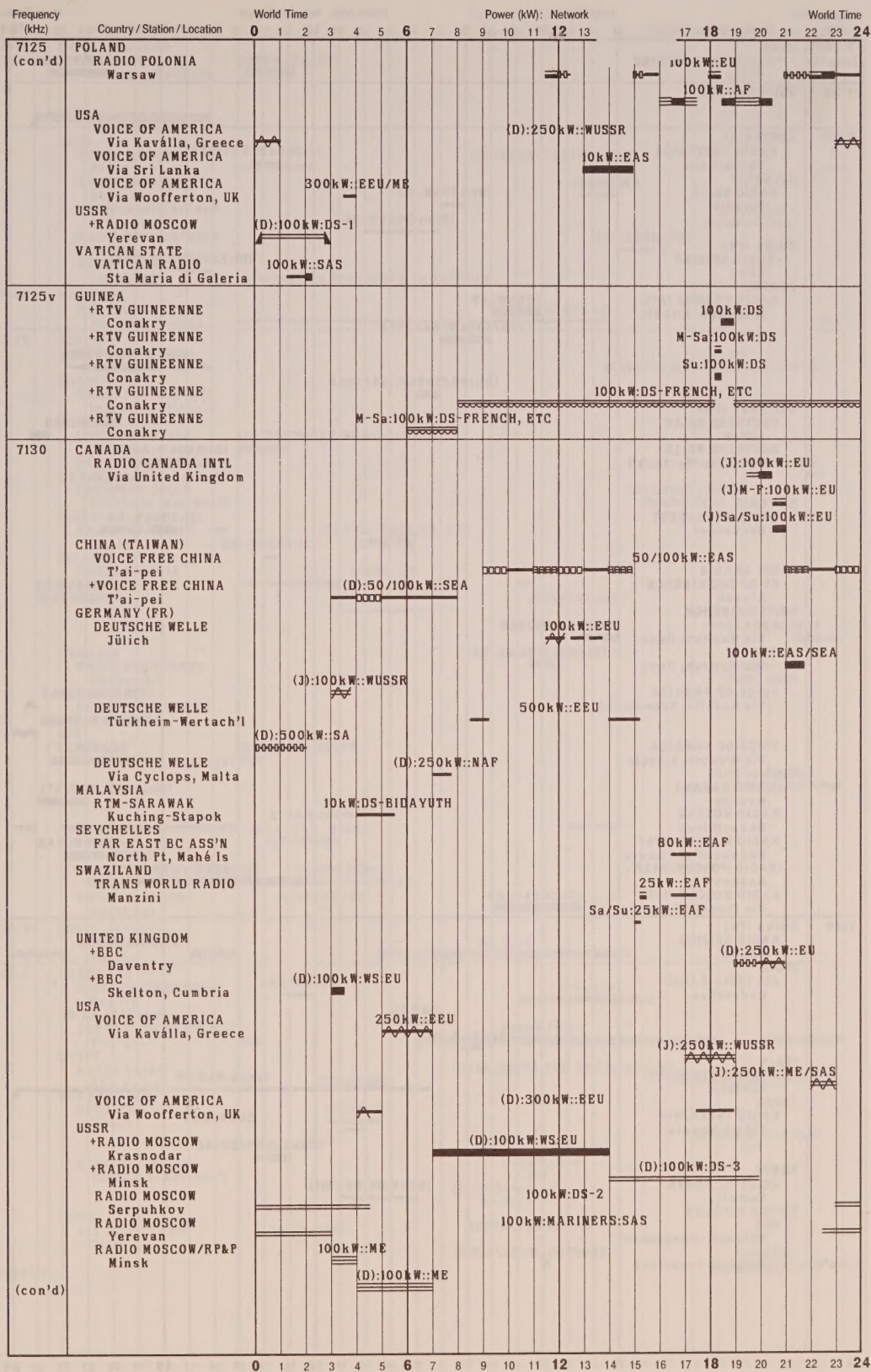




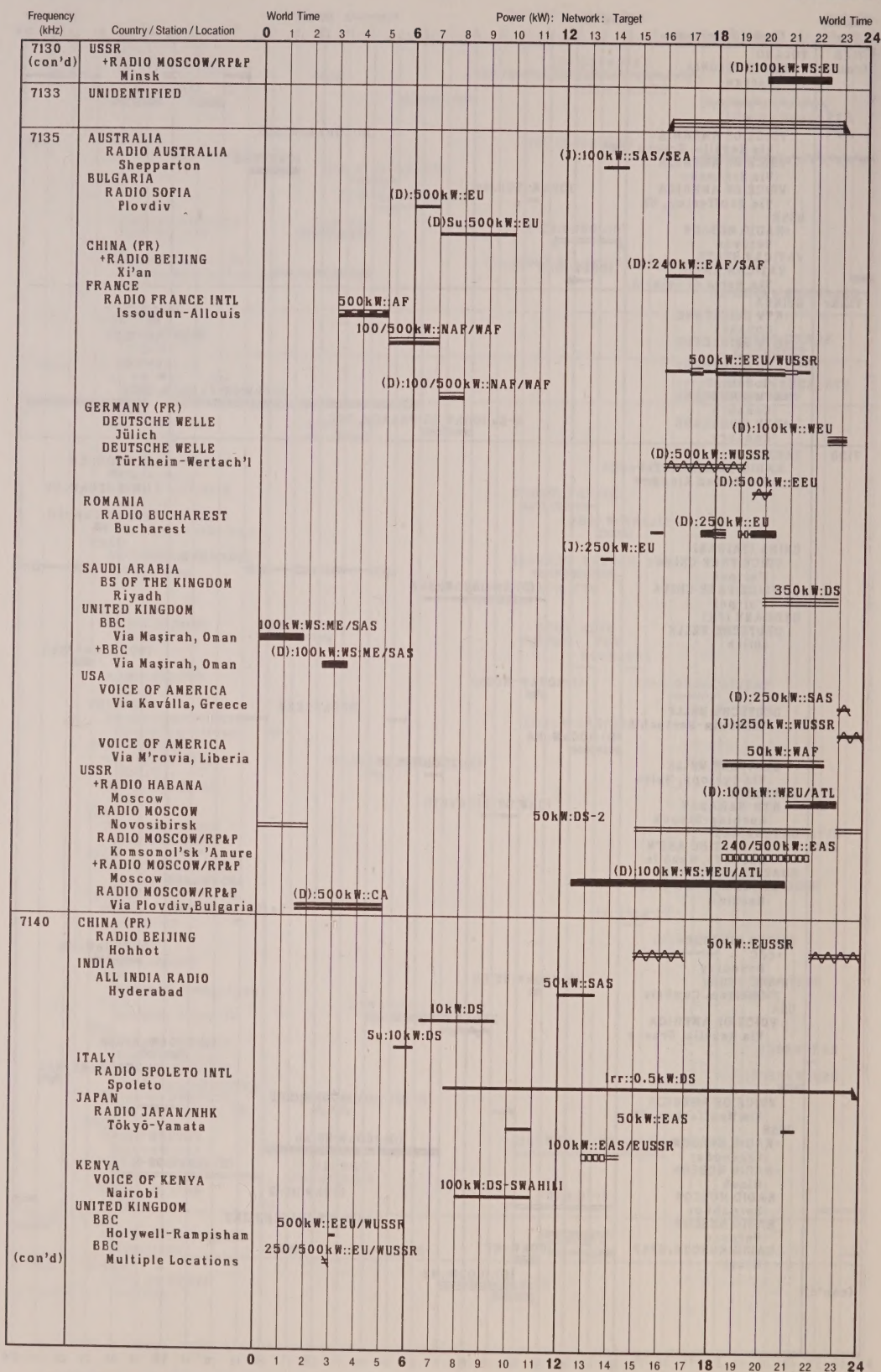
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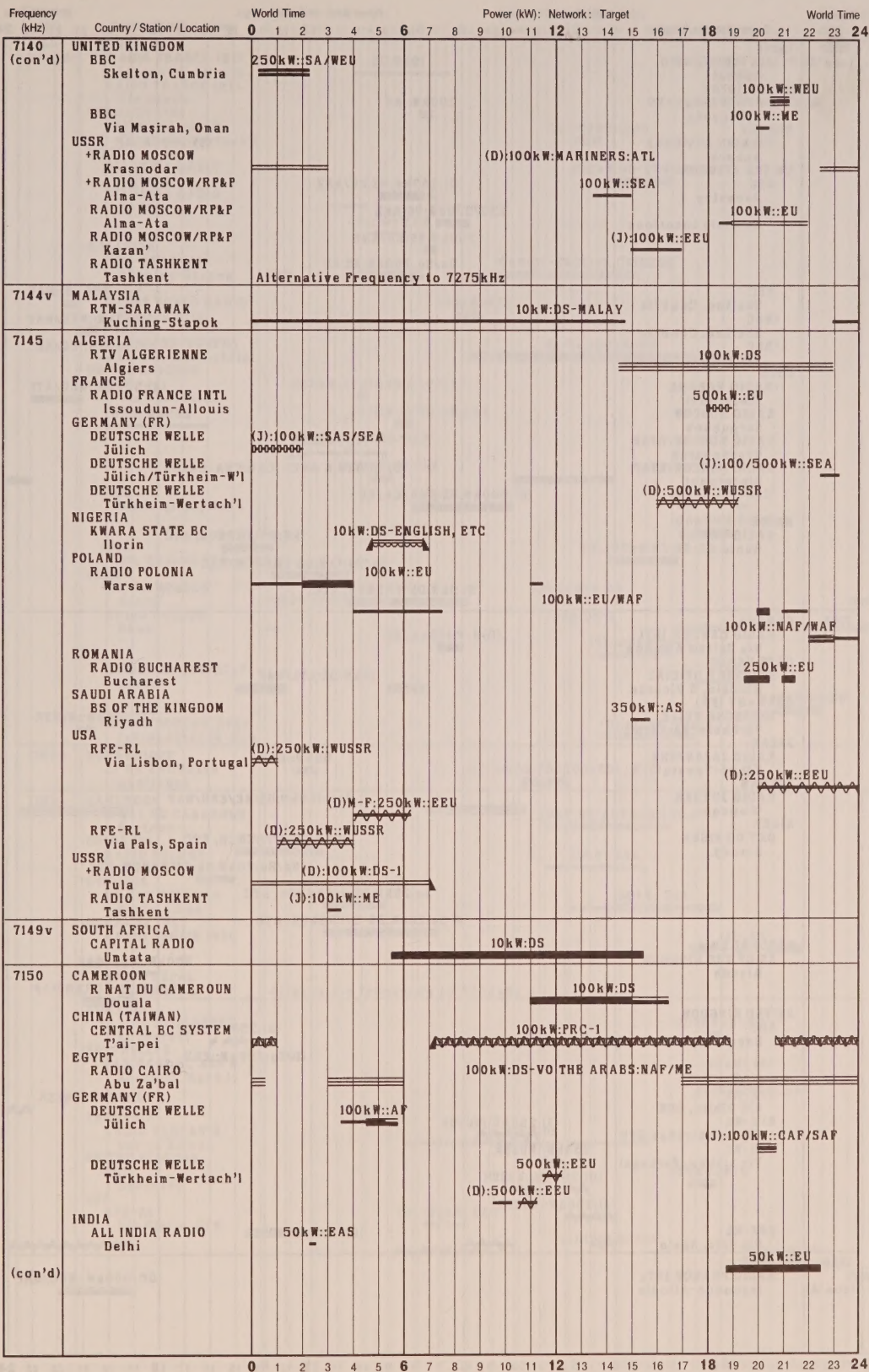


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 ARABIC / 0000 RUSSIAN / РУССКИЙ ■ CHINESE / 0000 JAPANESE / 0000 MULTILINGUAL 0000 OTHER ■
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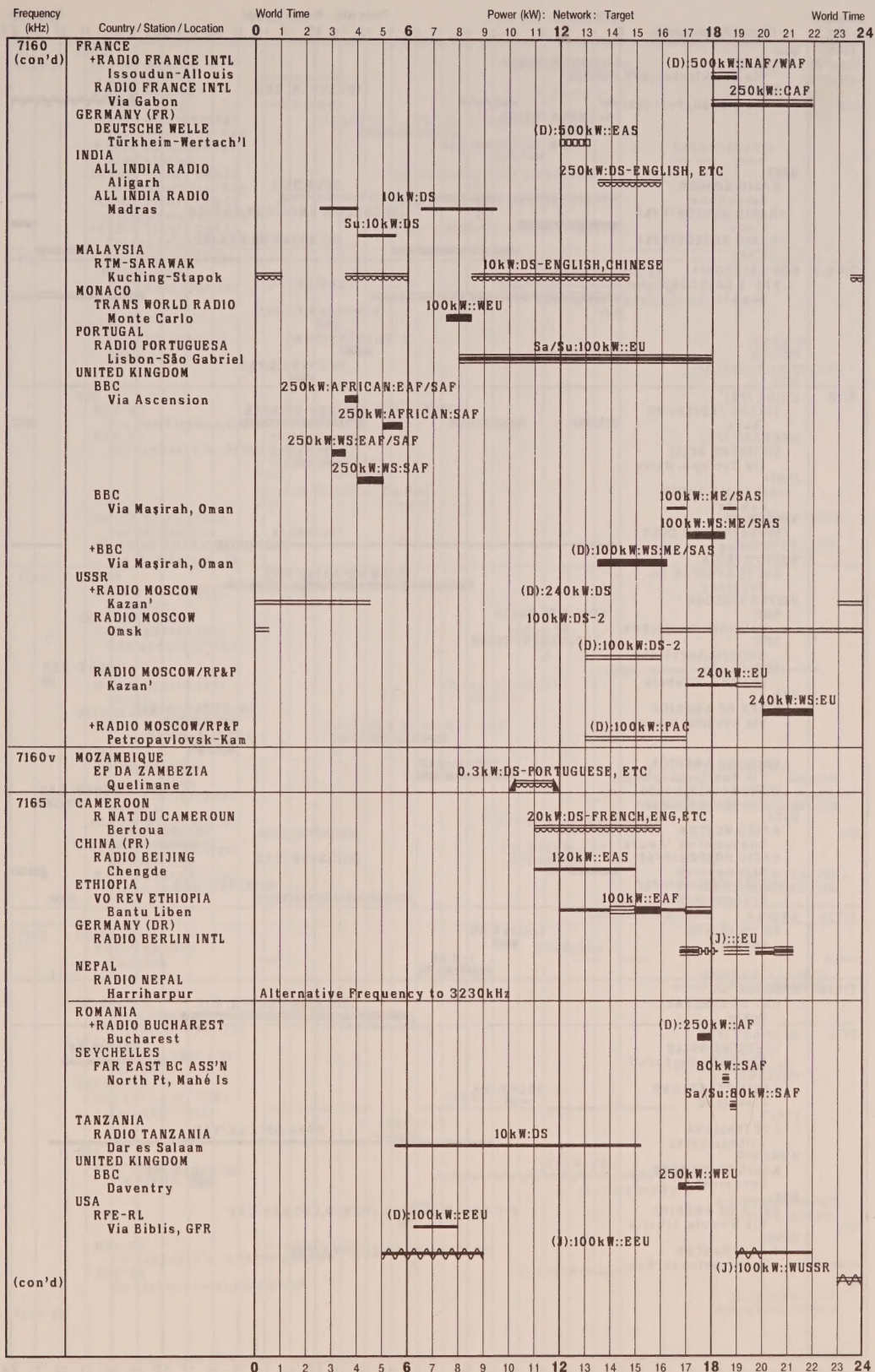




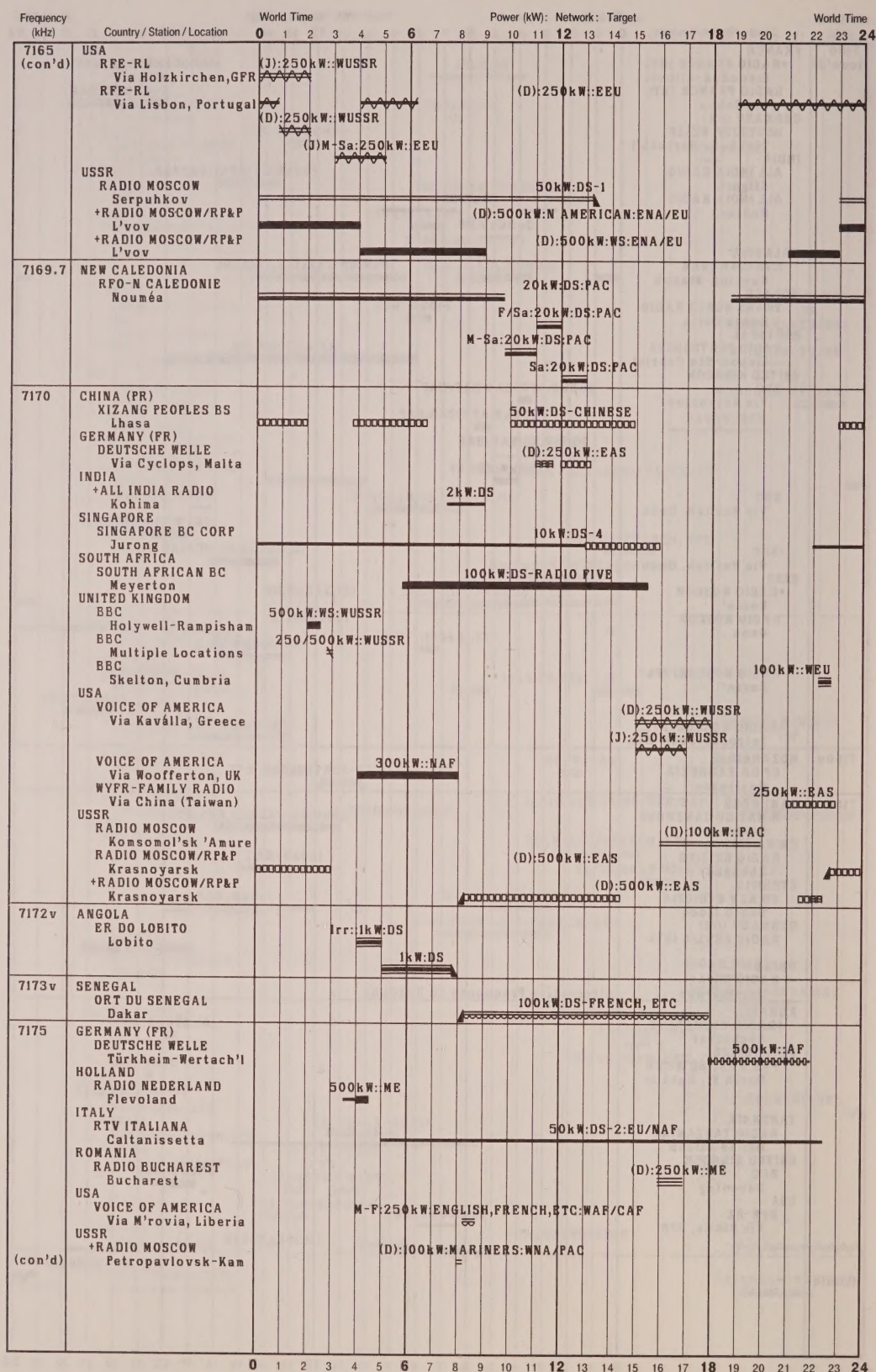
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD + TENTATIVE

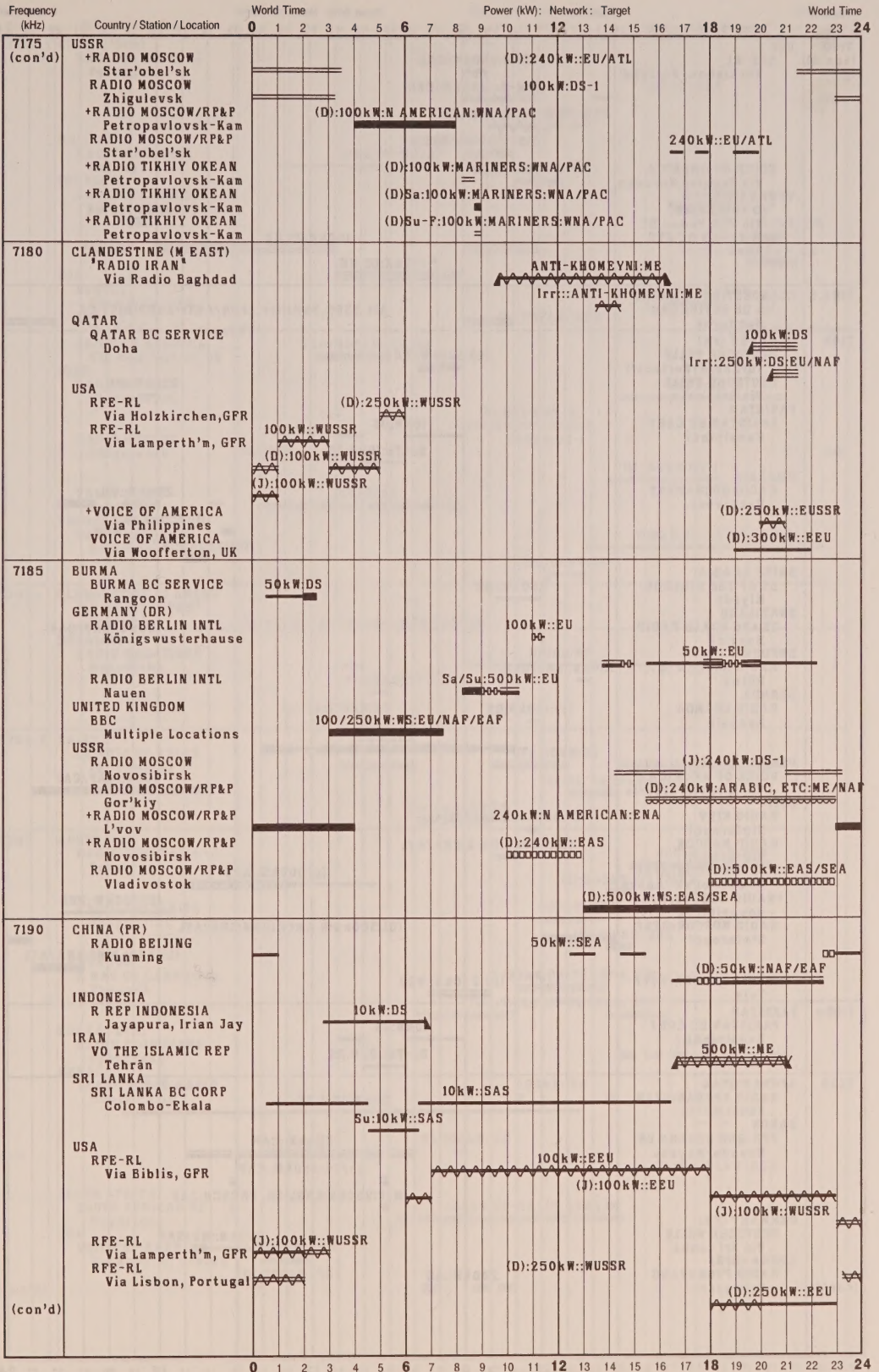
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ARABIC / اَرَبِي ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 ■■■ JAPANESE / 日本語 ■■■ MULTILINGUAL ■■■ OTHER ■■■
SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
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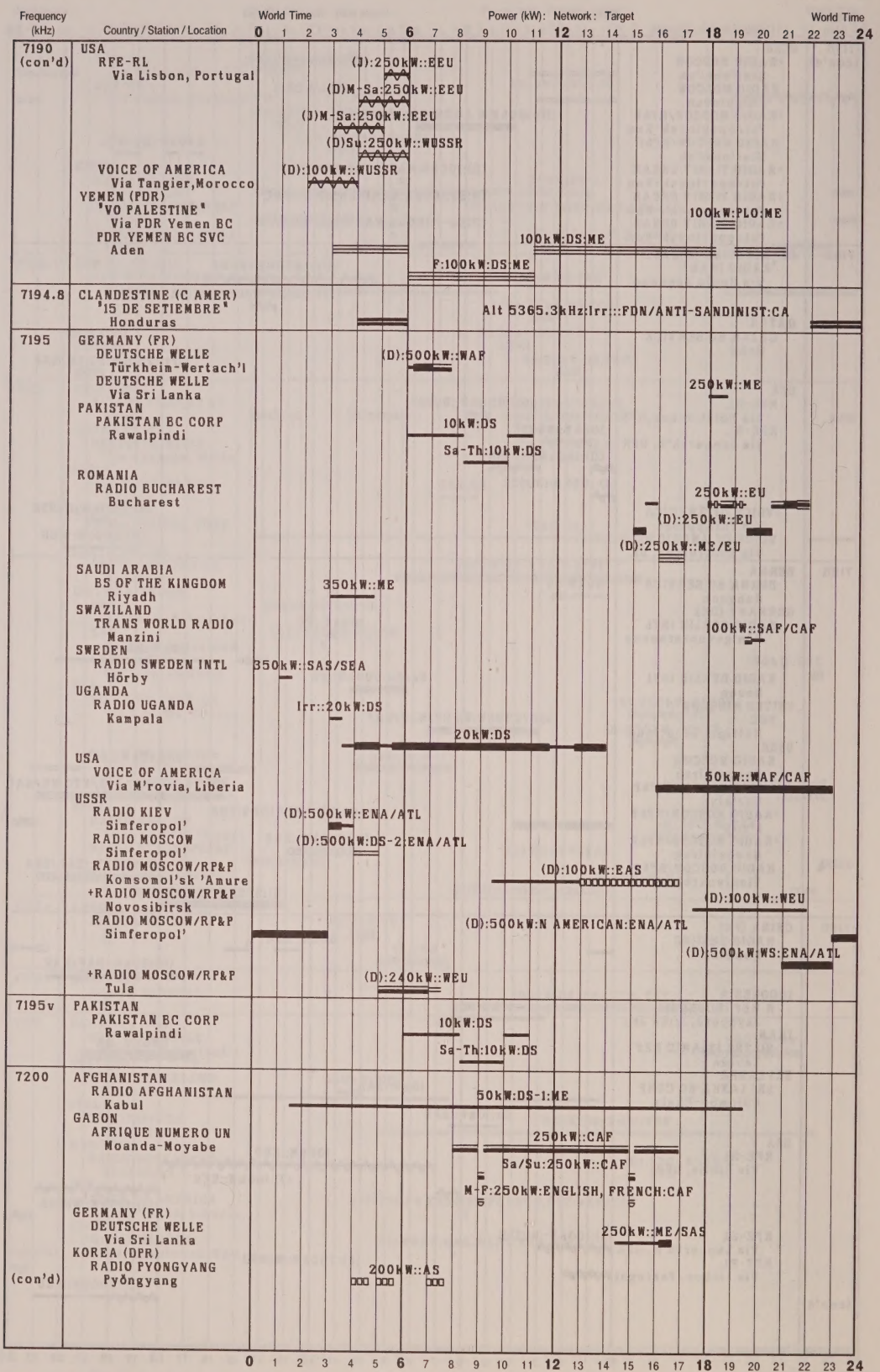


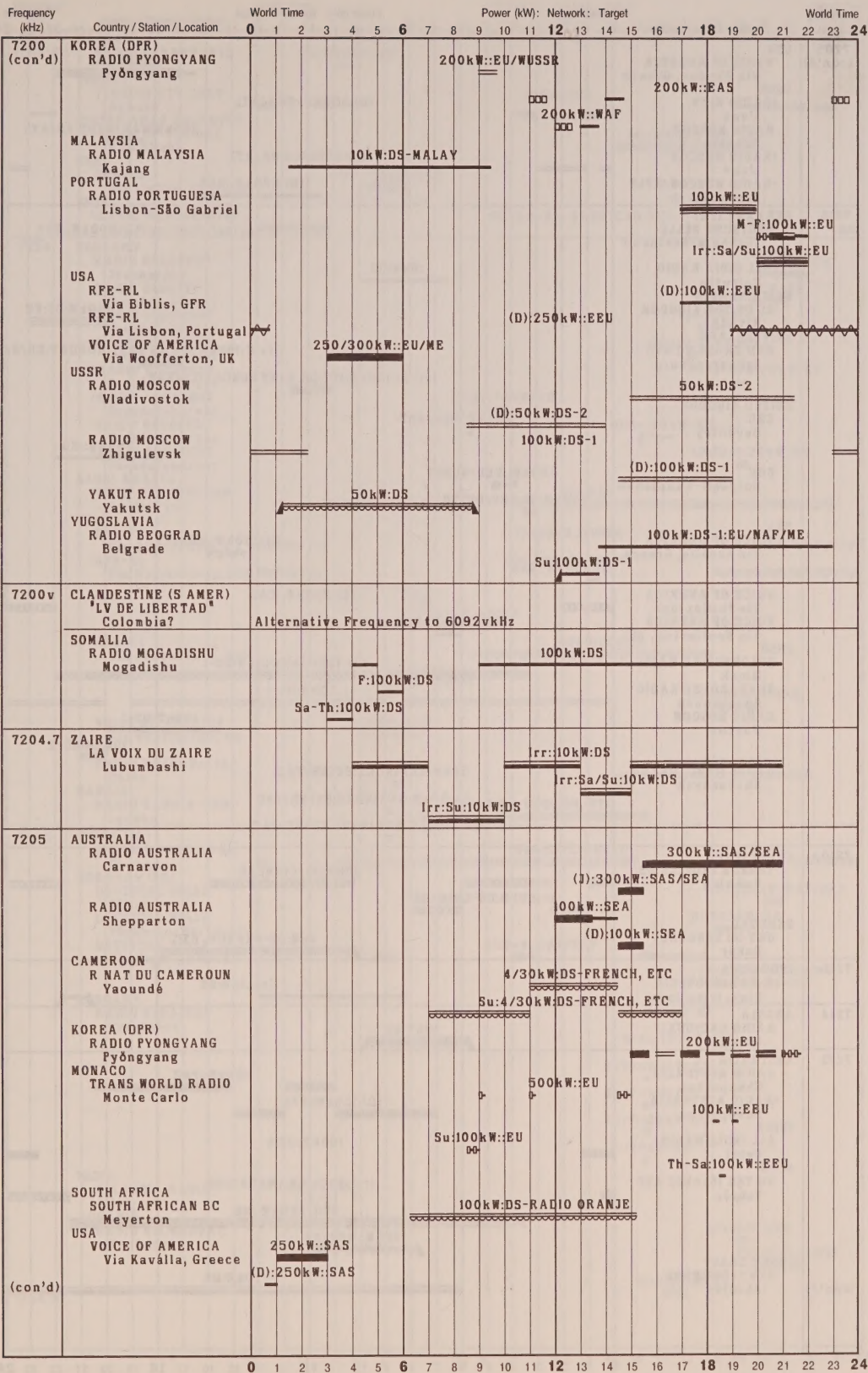


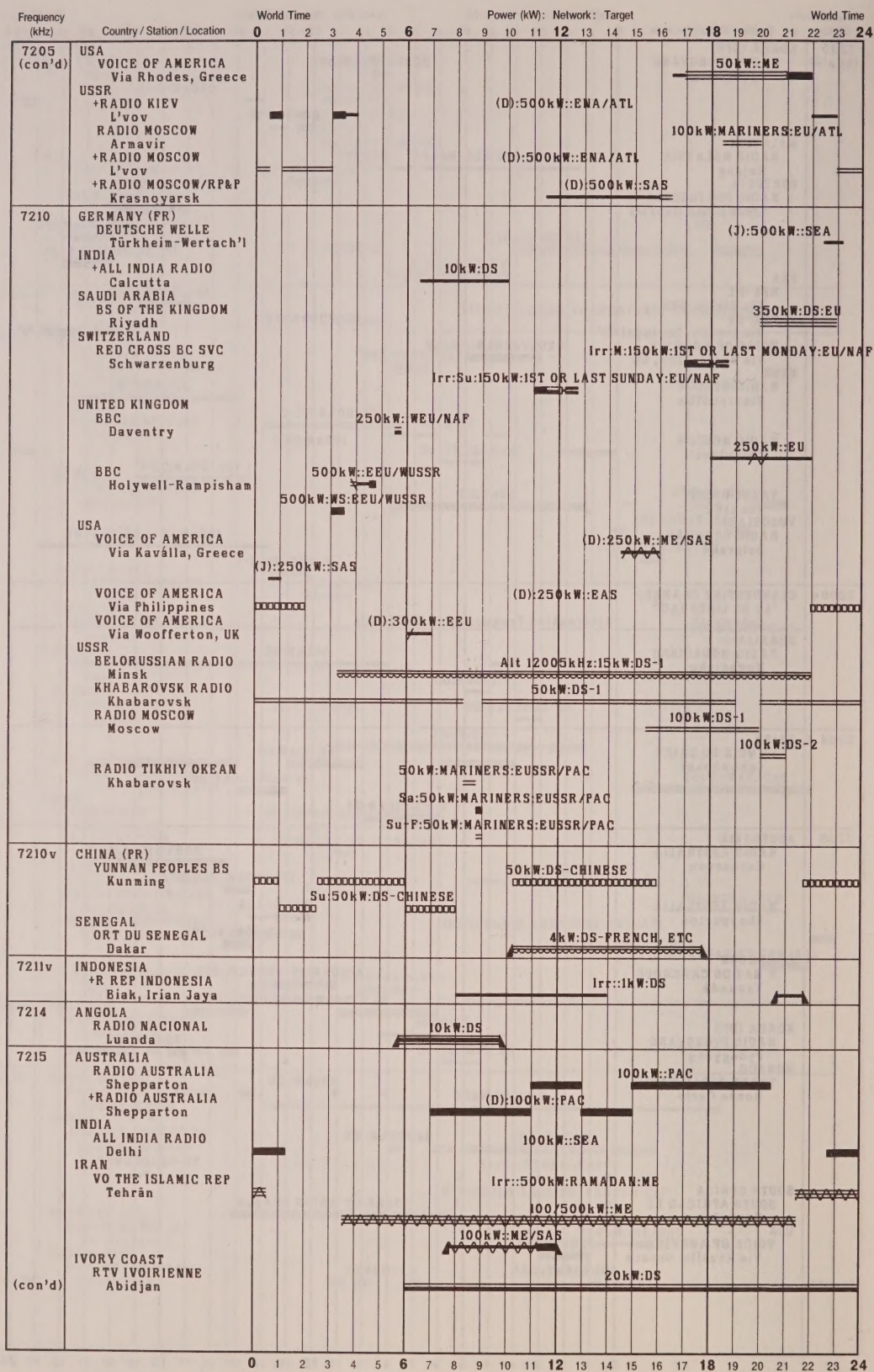
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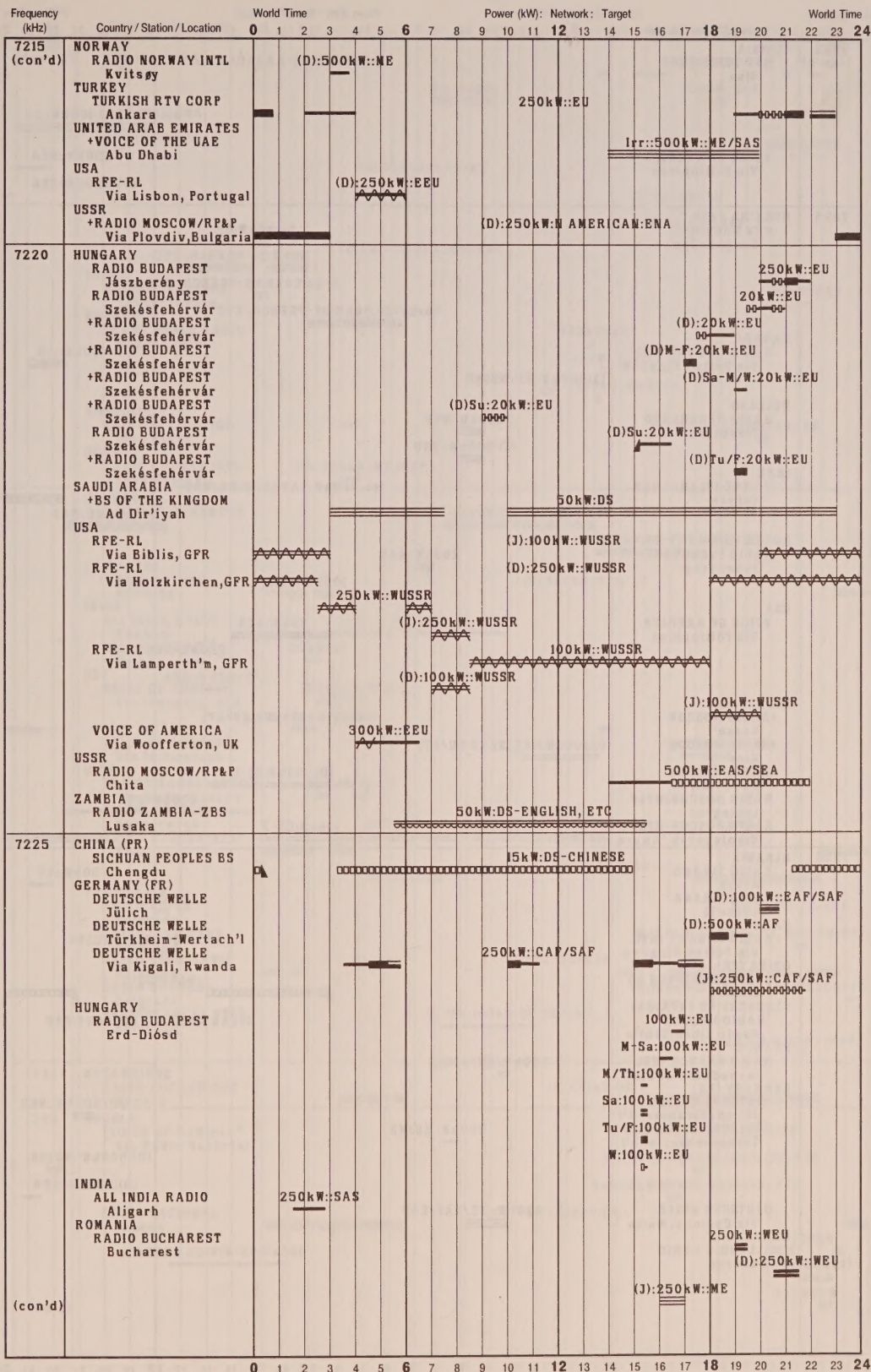
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SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE









ENGLISH ■ GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS ■ PORTUGUESE / PORTUGUÊS ■ SPANISH / ESPAÑOL ■
 ARABIC / ٠٠٠ ■ RUSSIAN / РУССКИЙ ■ CHINESE / 中 文 ■ JAPANESE / 日 本 語 ■ MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																							
7225 (con'd)	TUNISIA RTV TUNISIENNE Sfax	Irr: 100kW: DS-RAMADAN: EU																							
	USA VOICE OF AMERICA Via Philippines	Alt 7310kHz: 100kW: EU 250kW: SEA (D): 250kW: SEA																							
7230	BURKINA FASO RTV BURKINA Ouagadougou	Su: 50kW: DS 50kW: DS-FRENCH, ETC M-Sa: 50kW: DS-FRENCH, ETC Th/Sa/Su: 50kW: DS-FRENCH, ETC																							
	CANADA RADIO CANADA INTL Via United Kingdom	(J): 100kW: EU/WUSSR 100kW: EU																							
	HOLLAND RADIO NEDERLAND Flevoland	500kW: WEU (J): 500kW: WEU																							
	IRAN VO THE ISLAMIC REP Tehrān	Irr: 100kW: RAMADAN: ME/NAF 100kW: ME/NAF																							
	KOREA (DPR) RADIO PYONGYANG Pyōngyang	200kW: EAS																							
	USA VOICE OF AMERICA Via Philippines	100kW: SEA 35kW: SEA 250kW: SAS (J): 50kW: SEA																							
	USSR +RADIO MOSCOW Kazan' +RADIO MOSCOW Kiev +RADIO MOSCOW Novosibirsk RADIO MOSCOW/RP&P Leningrad RADIO MOSCOW/RP&P Nikolayevsk 'Amure	(D): 100kW: MARINERS: EU/ATL 100kW: MARINERS: EU/ATL (D): 00kW: DS-1 100kW: DS-2 100kW: EU																							
7235	ALBANIA RADIO TIRANA Krujë RADIO TIRANA Lushnjë	50kW: EU 50kW: ME																							
	CANADA RADIO CANADA INTL Via United Kingdom	100/300kW: EU/WUSSR																							
	CHINA (PR) CENTRAL PEOPLES BS Beijing	50kW: DS-2																							
	CLANDESTINE (AFRICA) 'RADIO HALGAN' Bantu Liben, Ethi'a	100kW: ANTI-SOMALI GOVT: EAF																							
	FRANCE RADIO FRANCE INTL Issoudun-Allouis	500kW: EU/WUSSR																							
	GERMANY (FR) DEUTSCHE WELLE Jülich/Türkheim-W'l DEUTSCHE WELLE Türkheim-Wertach'l	500kW: EU/ME (D): 500kW: WUSSR (D): 500kW: SEA																							
	DEUTSCHE WELLE Via Cyclops, Malta	250kW: ME/NAF/EAF																							
(con'd)	INDIA ALL INDIA RADIO Madras	100kW: DS-VIVIDH BHARATI																							

Frequency (kHz)	Country / Station / Location	World Time												Power (kW); Network : Target												World Time											
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
7245 (con'd)	ANGOLA RADIO NACIONAL Luanda																																				
	LIBYA RADIO JAMAHIRIYA																																				
	MAURITANIA ORT DE MAURITANIE Nouakchott																																				
	USA R FREE AFGHANISTAN Via Lamperth'm, GFR RFE-RL Via Biblis, GFR RPE-RL Via Lamperth'm, GFR																																				
7246	ALGERIA RTV ALGERIENNE Algiers																																				
7250	CHINA (TAIWAN) CENTRAL BC SYSTEM Taipei																																				
	INDIA ALL INDIA RADIO Lucknow																																				
	SAUDI ARABIA BS OF THE KINGDOM Jiddah																																				
	SINGAPORE SINGAPORE BC CORP Jurong																																				
	USA RFE-RL Via Lisbon, Portugal																																				
	USSR +RADIO MOSCOW Serpuhkov RADIO MOSCOW/RP&P Kazan +RADIO MOSCOW/RP&P Serpuhkov RADIO MOSCOW/RP&P Tula VATICAN STATE VATICAN RADIO Sta Maria di Galeria																																				
7255	BOTSWANA RADIO BOTSWANA Gaborone																																				
	BULGARIA RADIO SOFIA Elin Pelin-Stolnik																																				
(con'd)																																					

ENGLISH

ARABIC / عربي

SUMMER ONLY (J)

GERMAN / DEUTSCH

RUSSIAN / РУССКИЙ

WINTER ONLY (D)

FRENCH / FRANÇAIS

CHINESE / 中文

JAMMING / or / or \

PORTUGUESE / PORTUGUÊS

JAPANESE / 日本語

EARLIEST HEARD

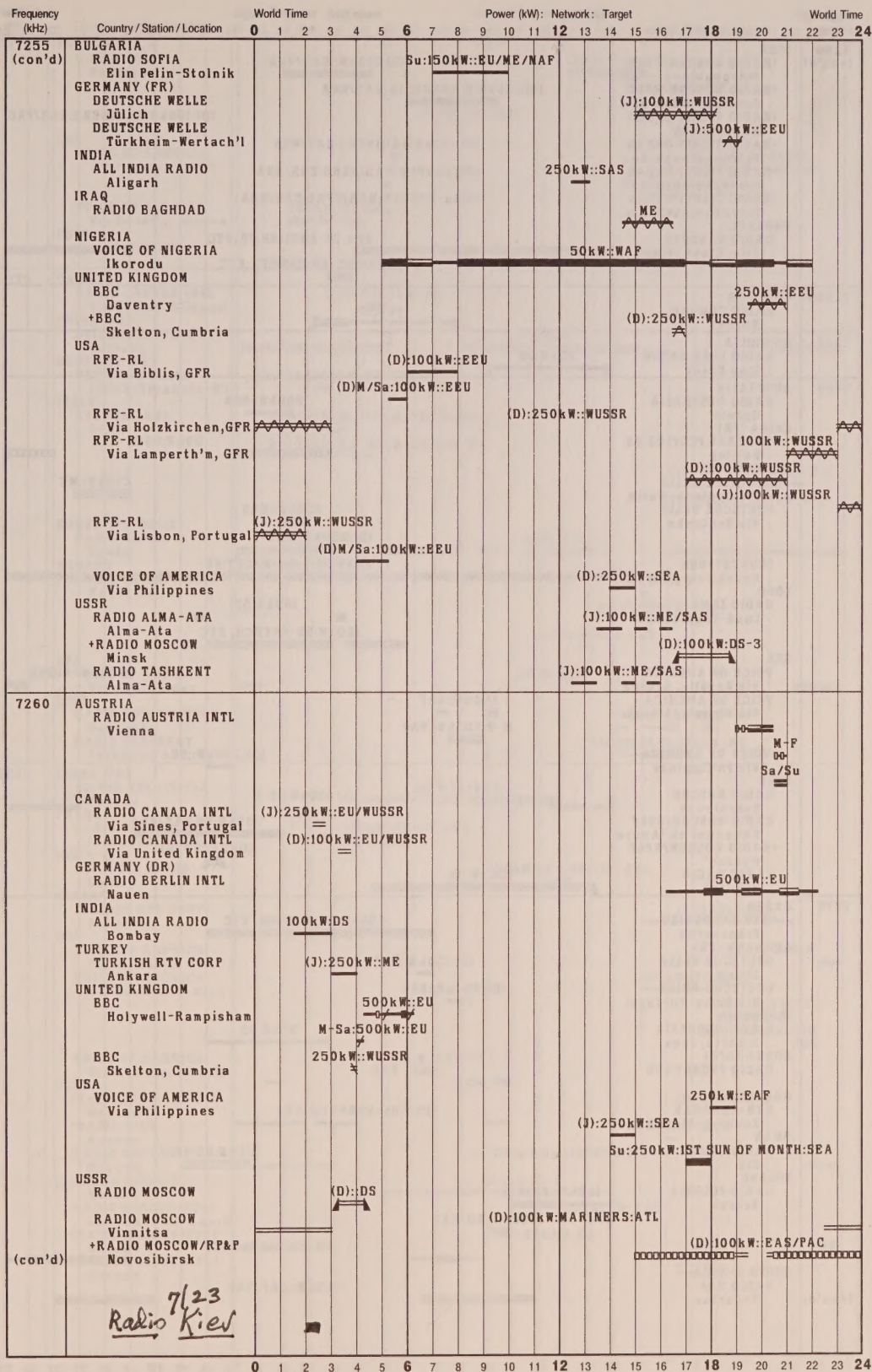
SPANISH / ESPAÑOL

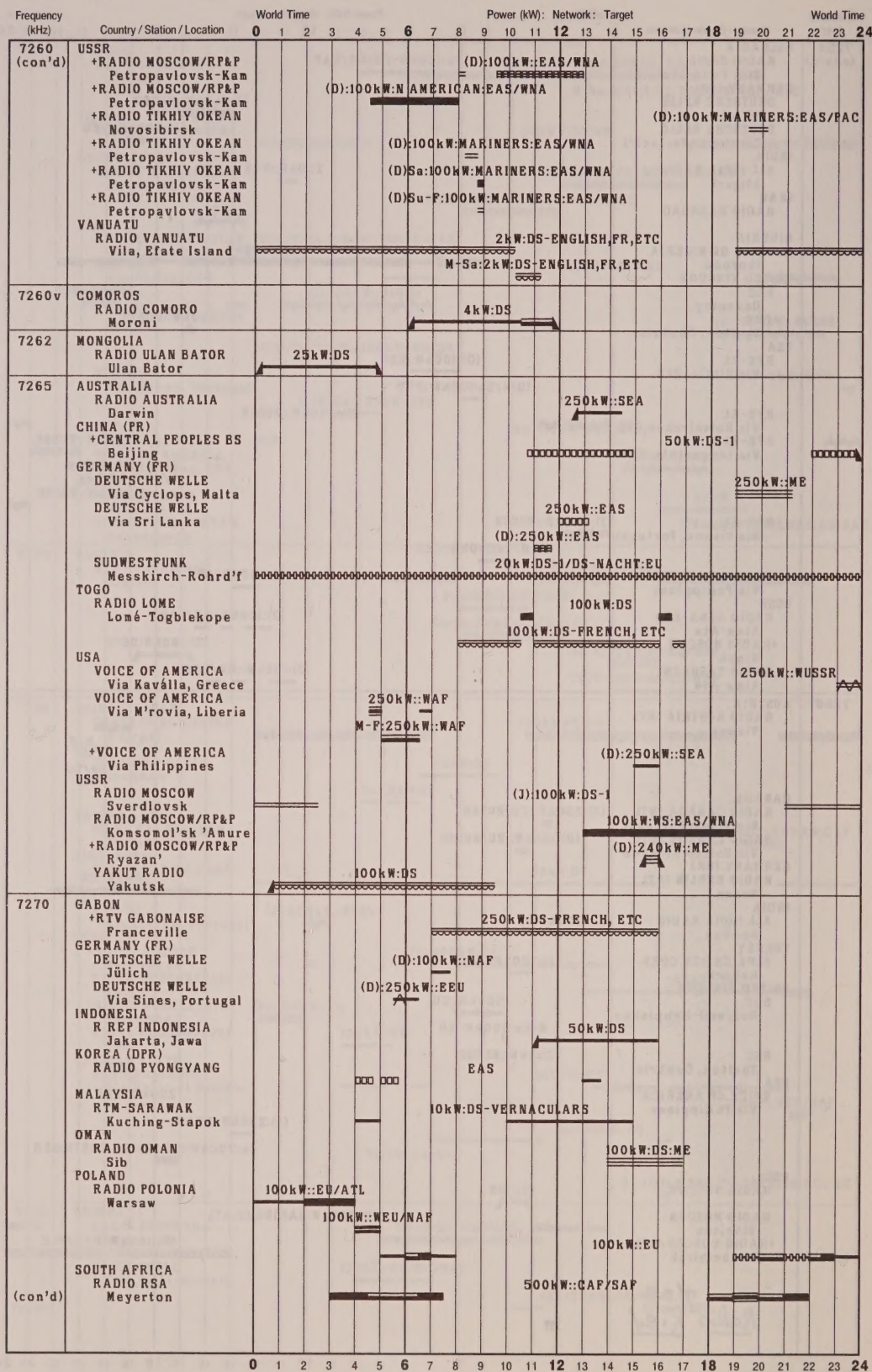
MULTILINGUAL

LATEST HEARD

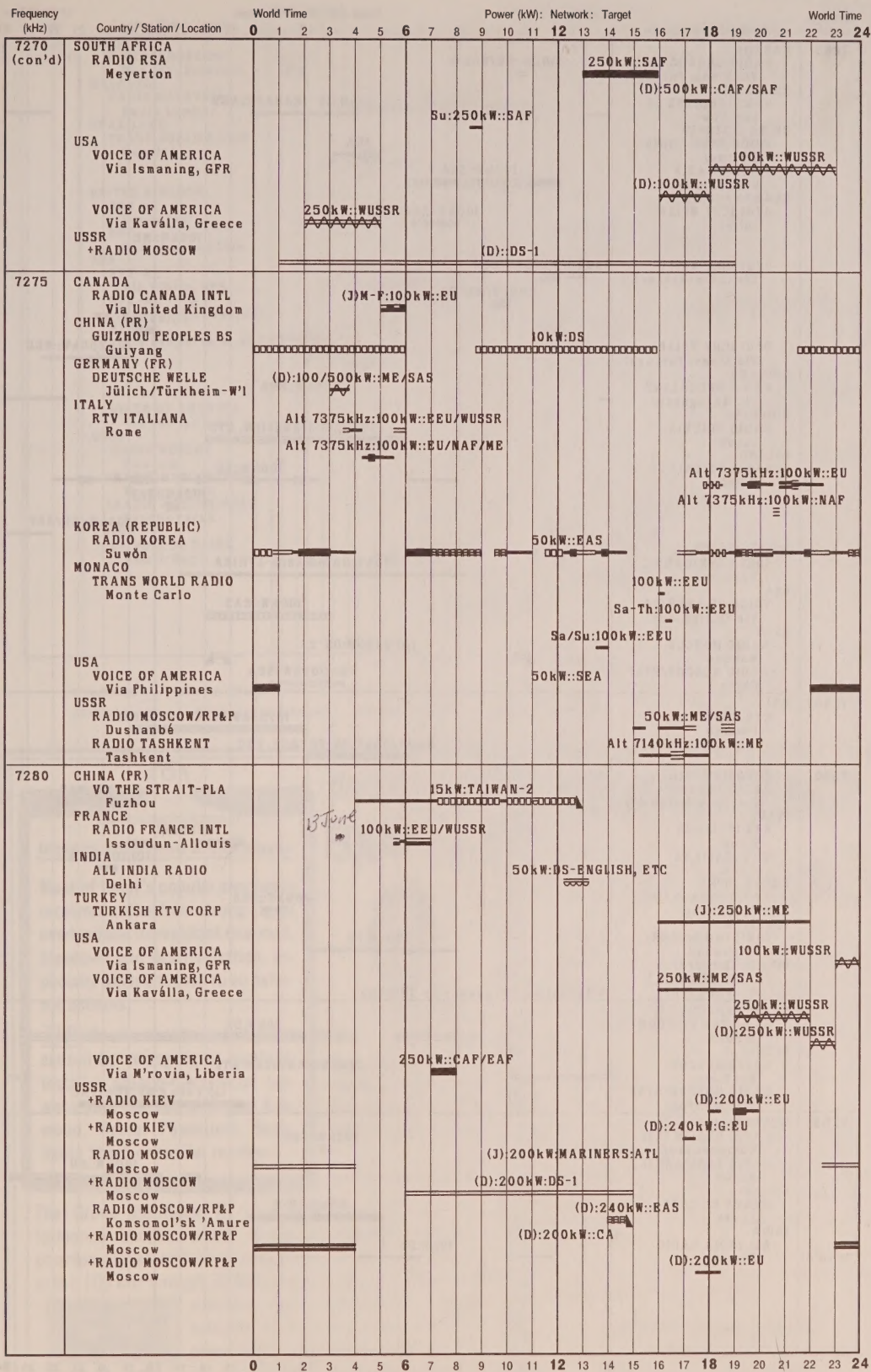
OTHER

* TENTATIVE



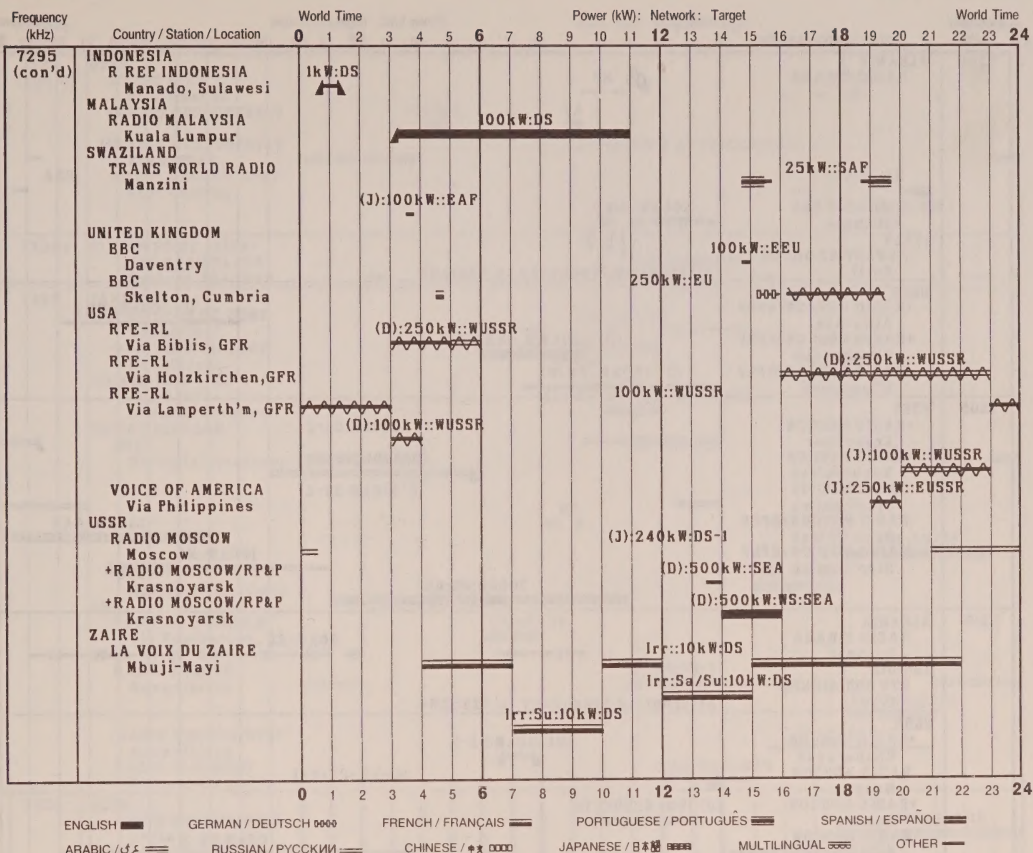


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 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
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ENGLISH ■ GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS ■ PORTUGUESE / PORTUGUÊS ■ SPANISH / ESPAÑOL ■
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 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

ENGLISH ■■■ GERMAN / DEUTSCH ■■■■ FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
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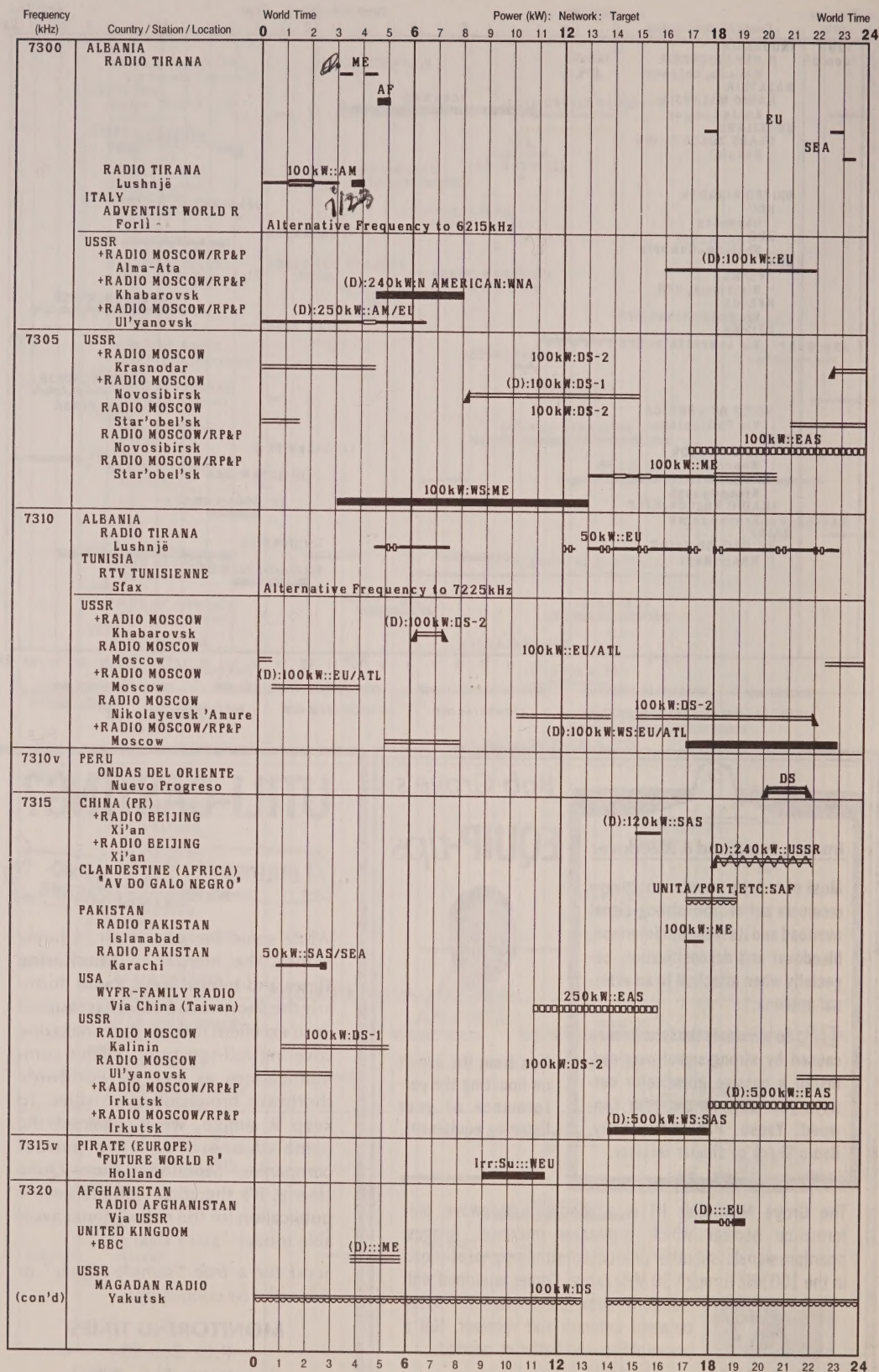
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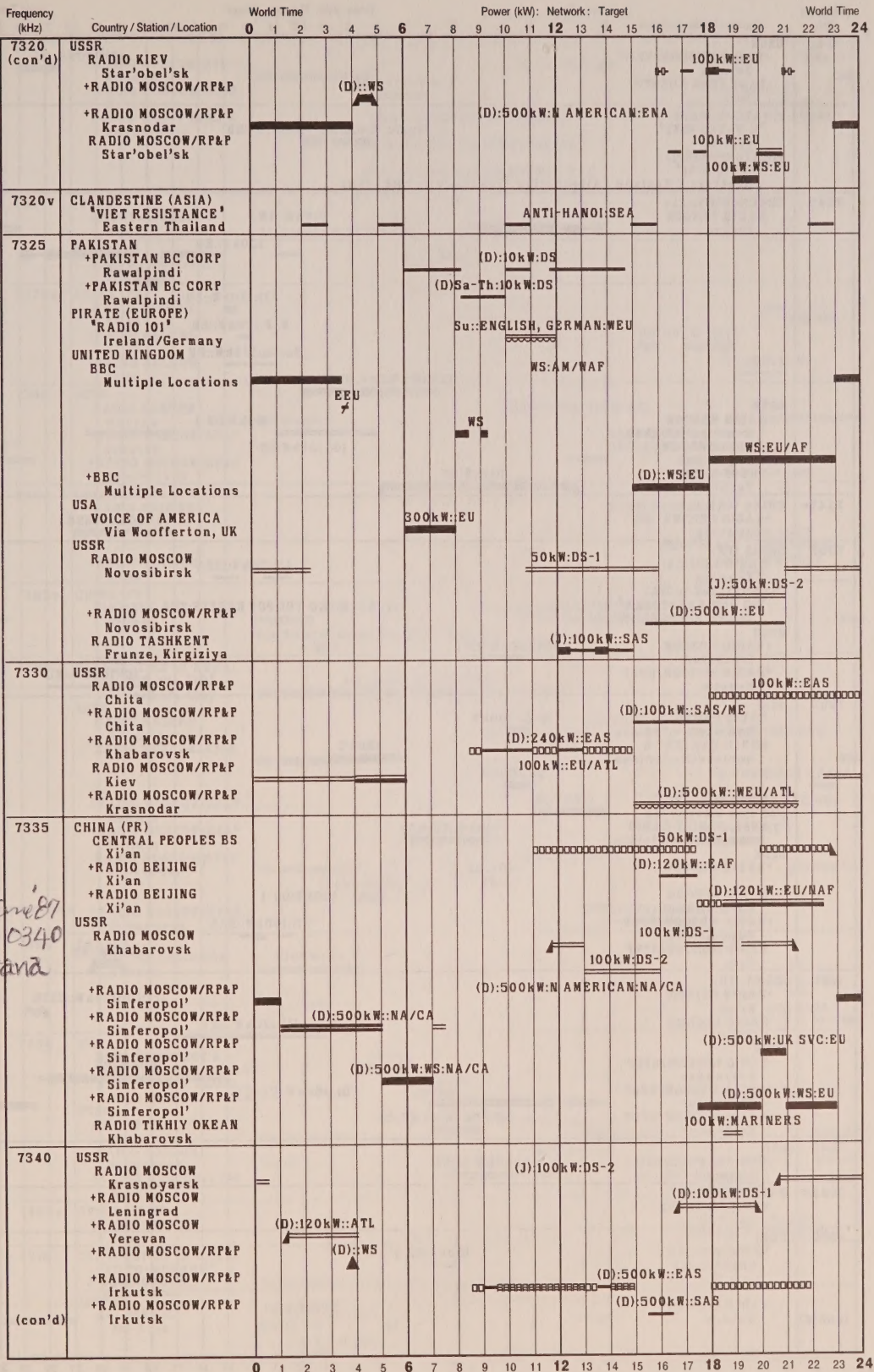
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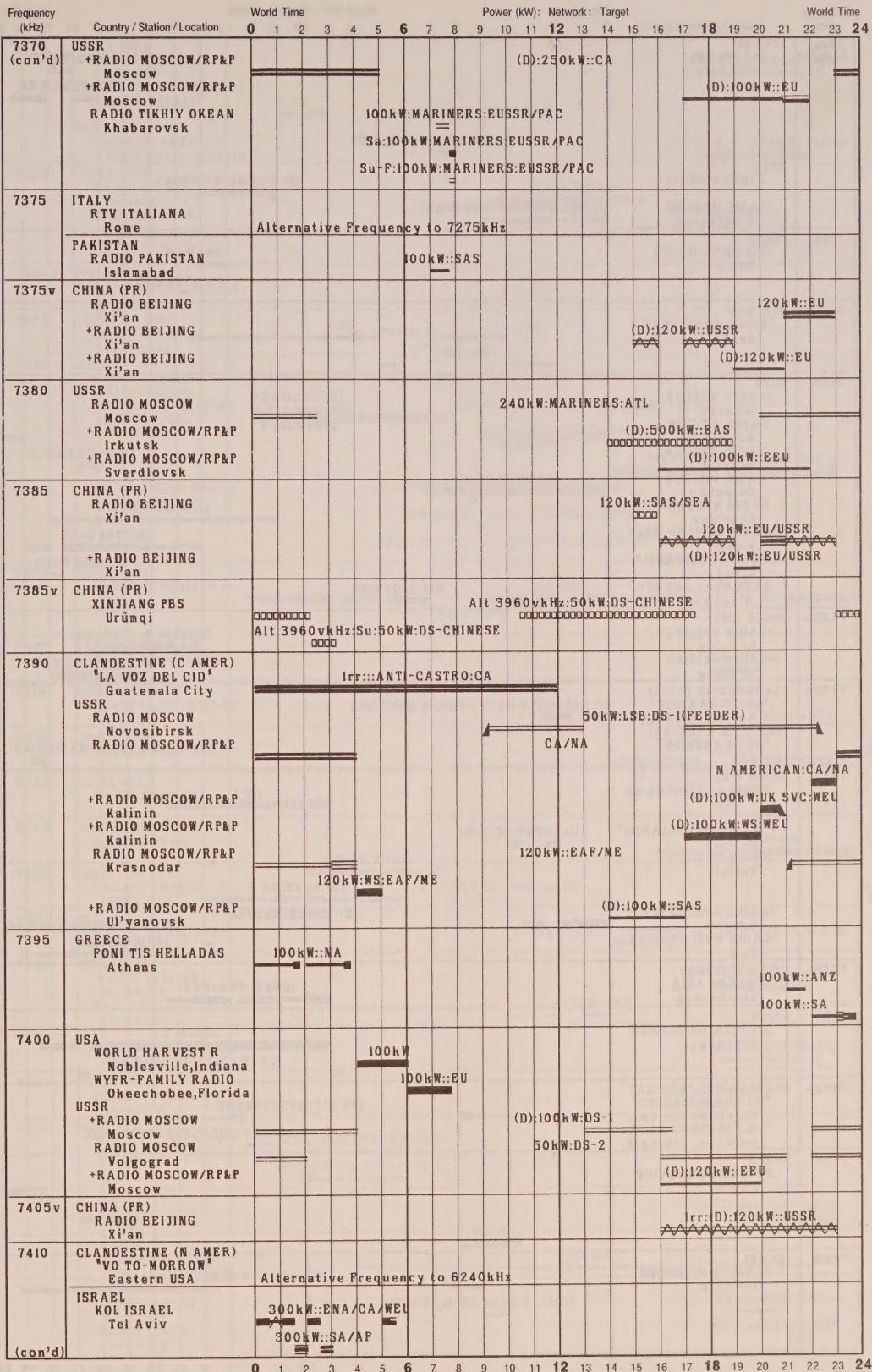
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ENGLISH ☐ GERMAN / DEUTSCH ☐ FRENCH / FRANÇAIS ☐ PORTUGUESE / PORTUGUÊS ☐ SPANISH / ESPAÑOL ☐
ARABIC / عَرَبِي ☐ RUSSIAN / РУССКИЙ ☐ CHINESE / 中文 ☐ JAPANESE / 日本語 ☐ MULTILINGUAL ☐ OTHER ☐
SUMMER ONLY (J) ☐ WINTER ONLY (D) ☐ JAMMING / \ / or / or \ ☐ EARLIEST HEARD ☐ LATEST HEARD ☐ † TENTATIVE

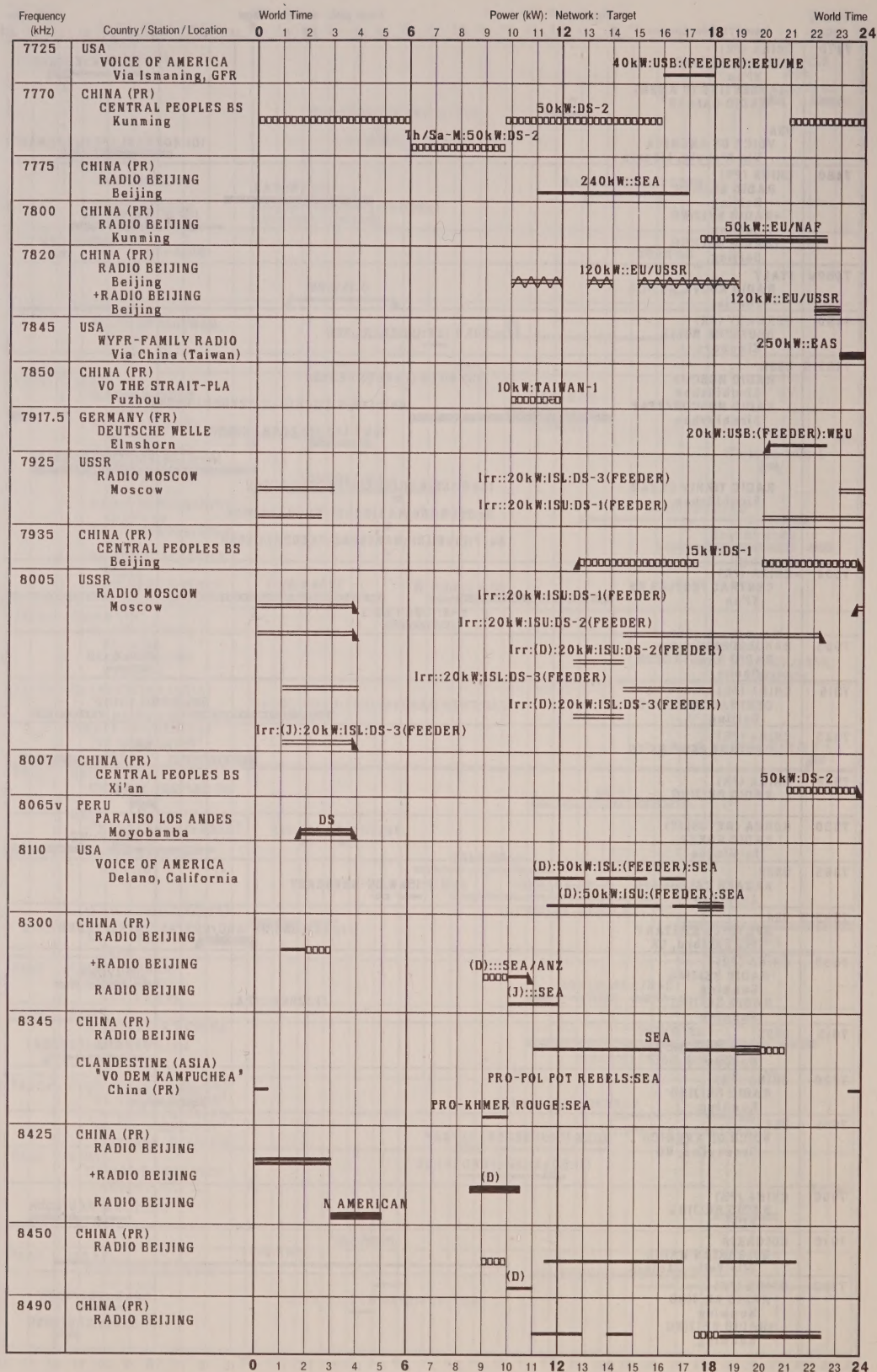


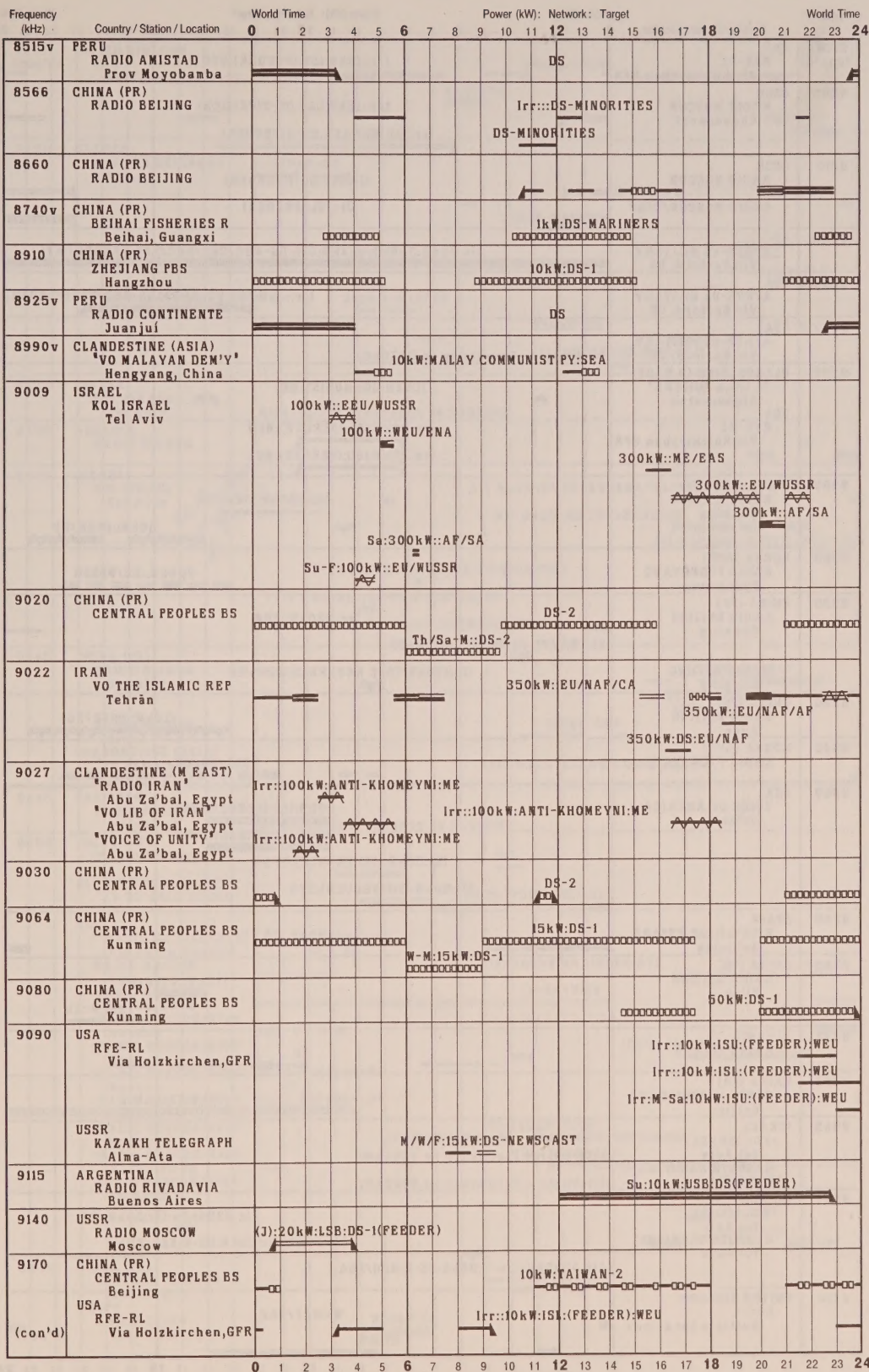
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 ARABIC / ٠٠٠ ■ RUSSIAN / РУССКИЙ ■ CHINESE / 中文字符 ■ JAPANESE / 日本語 ■ MULTILINGUAL ■ OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Power (kW): Network: Target	World Time
7410 (con'd)	ISRAEL KOL ISRAEL Tel Aviv			300kW::EU/WUSSR 300kW::EU/ENA
	USSR RADIO MOSCOW		M-F:300kW::ENA/CA/WEU Sa:300kW::ENA/CA/WEU	
	RADIO MOSCOW Vladivostok		(D):15kW:USB:DS-2 (FEEDER)	(D)::USB:DS-2 (FEEDER)
7412	INDIA ALL INDIA RADIO Delhi			50kW:DS Irr::50kW:DS
7418v	VIETNAM VOICE OF VIETNAM Hanoi		Su::DS	DS
7420	USSR +RADIO MOSCOW Irkutsk RADIO MOSCOW Moscow +RADIO MOSCOW Moscow +RADIO MOSCOW Serpuhkov RADIO MOSCOW/RP&P Khar'kov RADIO MOSCOW/RP&P Minsk RS SOV BELORUSSIA Minsk TASS NEWS AGENCY Ul'yanovsk		(D):50kW:DS-1 100kW:DS-1 (D):50kW:DS-1 M-F:100kW:DS	(D):100kW:DS-1 (J):100kW::EEU (D):100kW::EU (D):100kW::EU
7423v	CHINA (PR) +RADIO BEIJING Kunming +RADIO BEIJING Kunming			(D):120kW::USSR/EU (D):120kW::EU/USSR
7425v	CLANDESTINE (ASIA) VOICE OF UNITY Abu Za'bal, Egypt PIRATE (N AMERICA) VO COMMUNISM USA		Irr:(D):100kW:ANTI-AFGHAN GOVT:SAS	Irr:Suu::R MOSCOW SATIRE:NA
7440	CHINA (PR) CENTRAL PEOPLES BS USSR +RADIO MAGALLANES Moscow RADIO MOSCOW Kalinin +RADIO MOSCOW/RP&P Moscow RADIO MOSCOW/RP&P Tula		(D):250kW::WEU/SA 50kW:DS-3 (D):50kW:DS-3 (D):250kW::WEU/SA	DS-1 (J):100kW::WE
7445	CHINA (TAIWAN) VOICE OF ASIA Kao-hsiung			100kW::SEA/EAS
7450	SPAIN R EXTERIOR ESPANA Arganda			100kW::EU 100kW:SPANISH, ETC:EU
7452v	CLANDESTINE (AFRICA) VO BROAD MASSES Argadom, Ethiopia VO THE TIGRE REV Argadom, Ethiopia		SPR:PLF/2X3726VKHZ Tu/Th/Su::SPR:PLF/2X3726VKHZ	
7455	SYRIA SYRIAN BC SERVICE Adhra			SA EU
7465	ISRAEL RASHUTH HASHIDUR Tel Aviv		(D)Su-F:50kW:DS-B:WEU/ENA	(D):50kW:DS-B:WEU/ENA

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
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ENGLISH ☐ GERMAN / DEUTSCH ☐ FRENCH / FRANÇAIS ☐ PORTUGUESE / PORTUGUÊS ☐ SPANISH / ESPAÑOL ☐
ARABIC / ☐ RUSSIAN / РУССКИЙ ☐ CHINESE / 中文 ☐ JAPANESE / 日本語 ☐ MULTILINGUAL ☐ OTHER ☐
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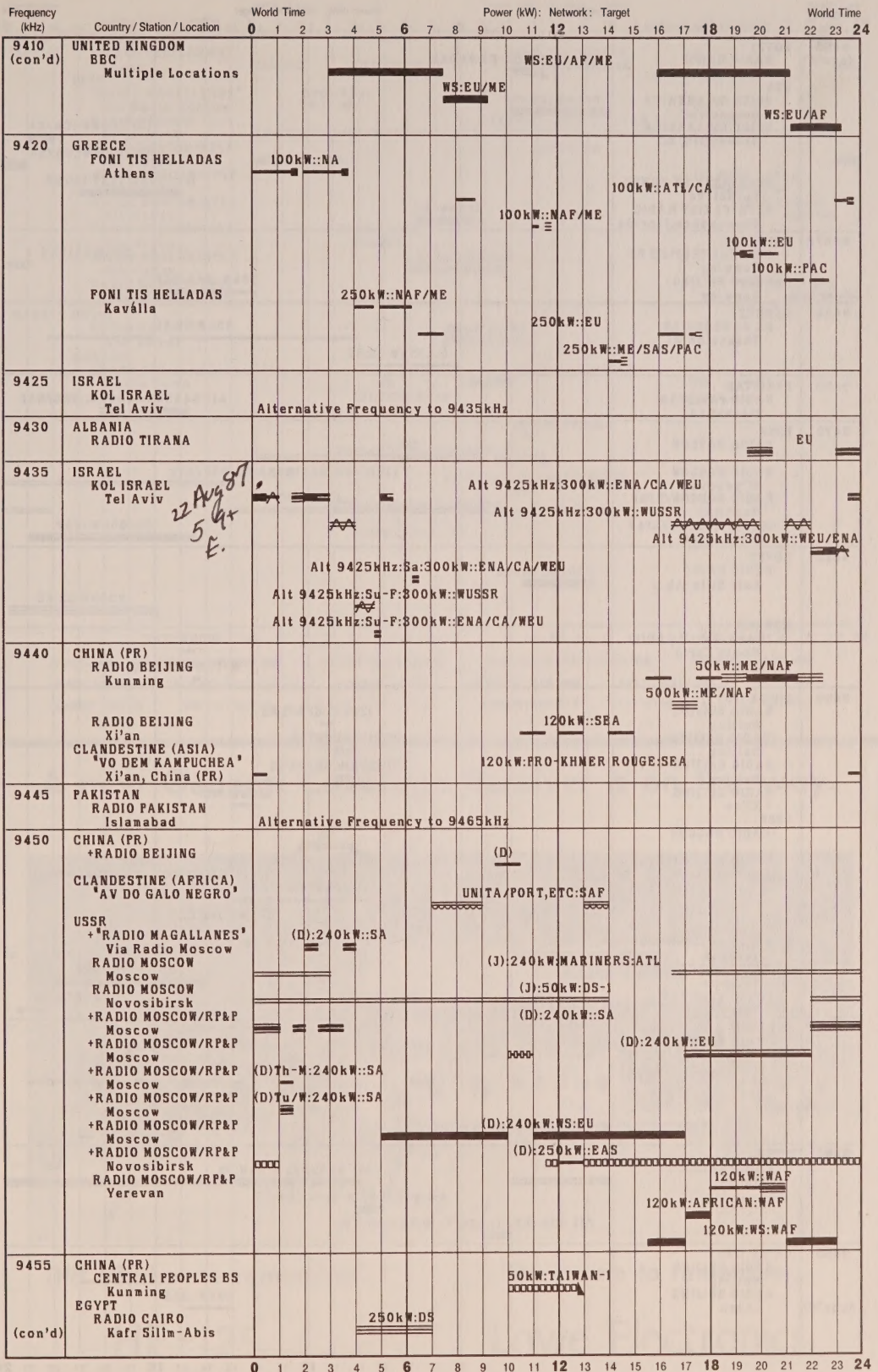


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ARABIC  RUSSIAN / РУССКИЙ  CHINESE  JAPANESE  MULTILINGUAL  OTHER 

SUMMER ONLY (J) WINTER ONLY (D) JAMMING  or / or \ EARLIEST HEARD  LATEST HEARD  + TENTATIVE



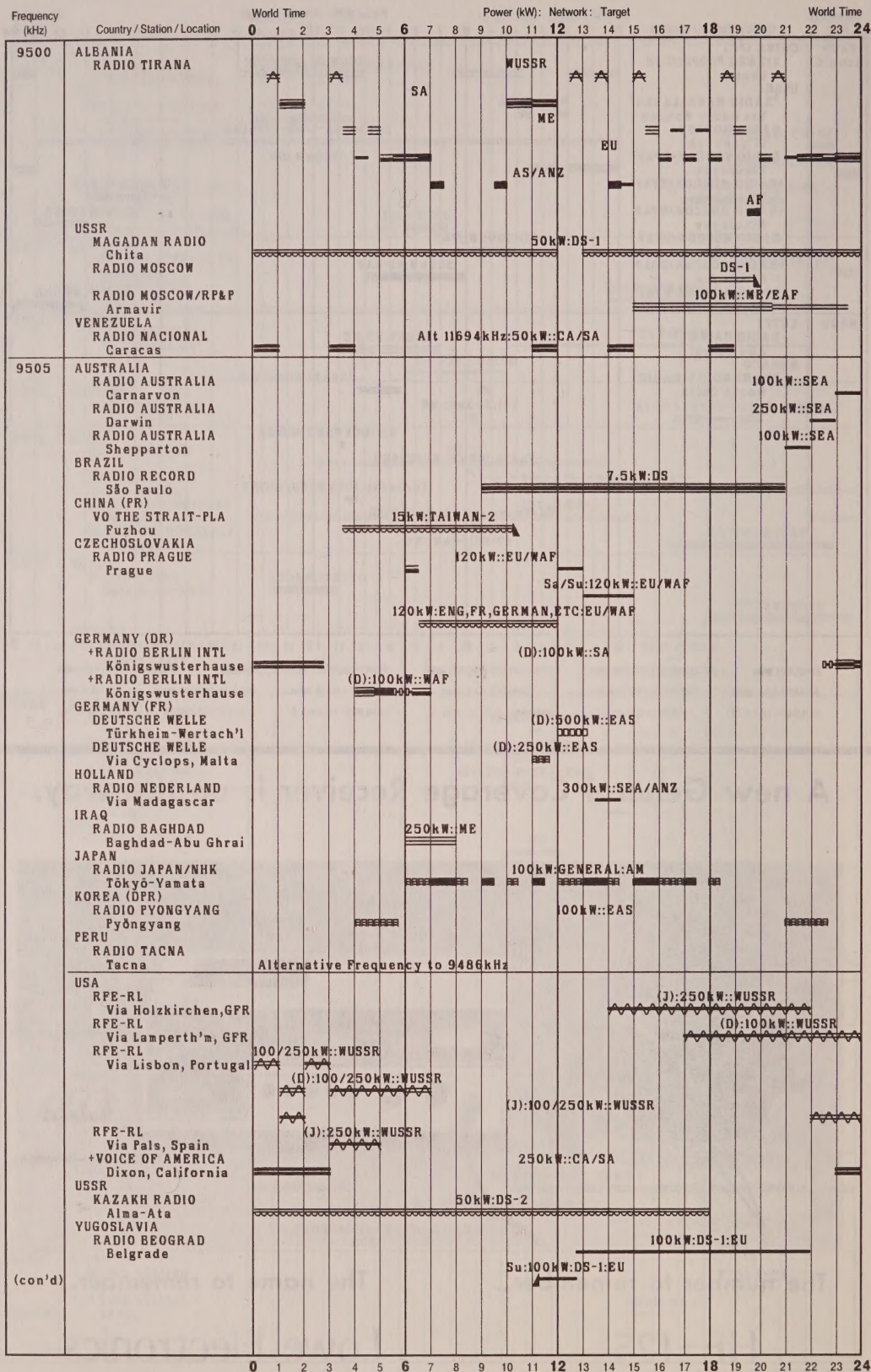
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 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Power (kW): Network: Target	World Time
9455 (con'd)	EGYPT RADIO CAIRO Kafir Silim-Abis USA VOICE OF AMERICA Greenville VOICE OF AMERICA Greenville, NC WMLK-ASBY OF YAWEH Bethel, Pa WYFR-FAMILY RADIO Okeechobee, Florida	Irr::250kW:DS-RAMADAN 500kW::CA/SA 100kW::EU 0000		(D):500kW::CA/SA (J):500kW::CA/SA Irr::50kW:TEST:EU/ME
9457v	CHINA (PR) CENTRAL PEOPLES BS Kunming RADIO BEIJING Kunming			50kW::SAS/SAF 50kW::TAIWAN-1 0000
9460	GREECE RS MAKEDONIAS Thessaloniki			35kW:DS:EU Su:35kW:DS:EU
9465	PAKISTAN RADIO PAKISTAN Islamabad			Alt 9445kHz:250kW::WEU/NAP
9470	USSR RADIO MOSCOW RADIO MOSCOW Ul'yanovsk RADIO MOSCOW/RP&P Moghilev +RADIO MOSCOW/RP&P Ul'yanovsk			DS-2 (J):100kW:MARINERS:EU/WAF/ATL 100kW:DS-2 (D):100kW::NAP
9475	EGYPT RADIO CAIRO Kafir Silim-Abis MONACO TRANS WORLD RADIO Monte Carlo	250kW::NA/CA		250kW:DS:EU 100kW::EEU M-F:100kW::EEU
9480	CHINA (PR) RADIO BEIJING Beijing +RADIO BEIJING Beijing RADIO BEIJING Beijing RADIO BEIJING Xi'an USSR +RADIO MOSCOW RADIO MOSCOW/RP&P Novosibirsk RADIO MOSCOW/RP&P Yerevan +RADIO MOSCOW/RP&P Yerevan RADIO YEREVAN Yerevan			120kW::SEA/EAS (D):120kW::USSR (J):120kW::SEA/EAS 120kW::ME (D) 250kW::EAS (D):250kW::EAS 250kW:DS-2:EAS 120kW::ME/EAF (D):120kW::NAP (D):120kW::ATL/SA
9480v	ALBANIA RADIO TIRANA	AF		EU WUSSR ME
9486	PERU RADIO TACNA Tacna			Alt 9505kHz:0.2kW:DS Alt 9505kHz:M-Sa:0.2kW:DS Alt 9505kHz:Irr:Tu-Su:0.2kW:DS
9490 (con'd)	CHINA (PR) RADIO BEIJING Beijing RADIO BEIJING Lhasa			120kW::EEU 50kW::SAS

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL

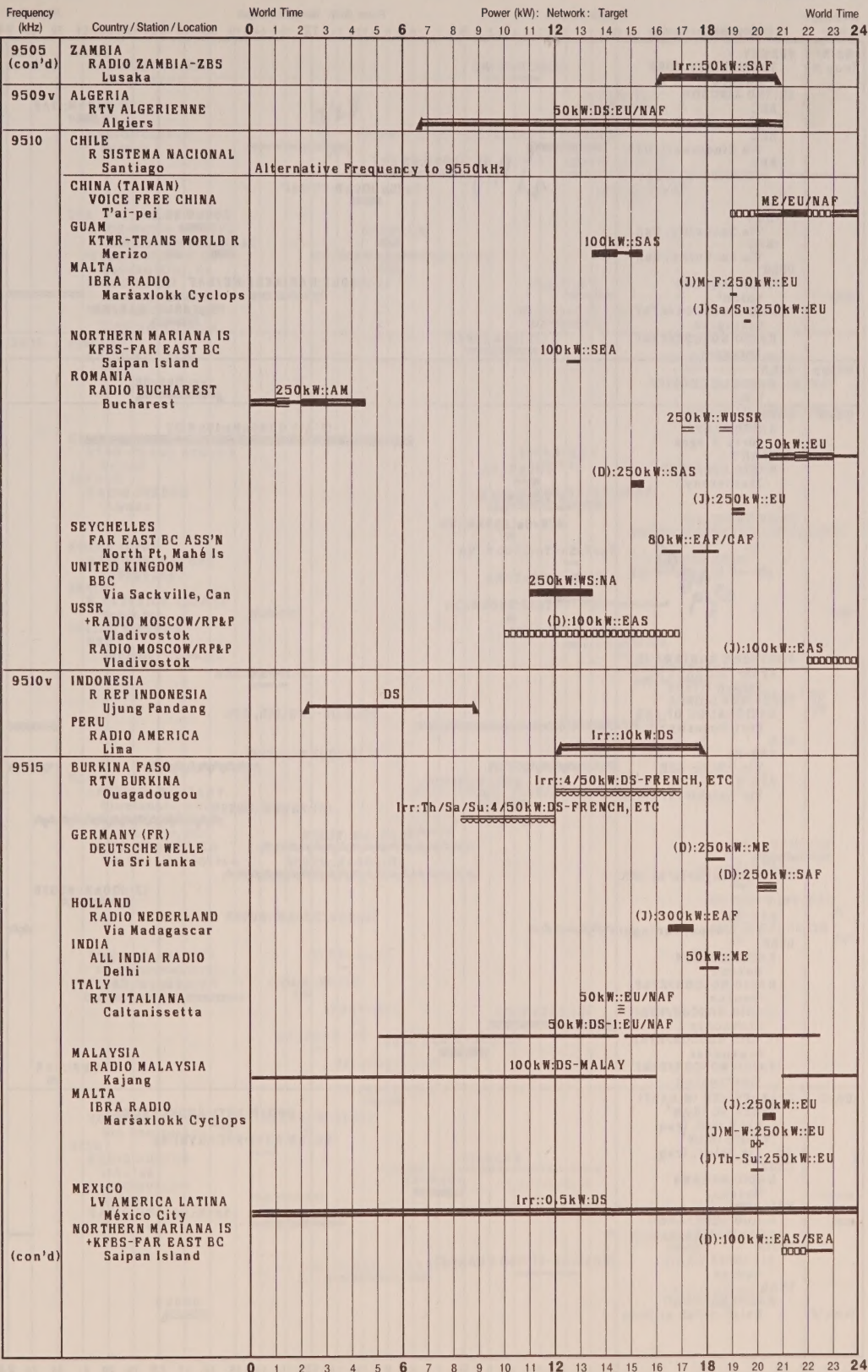
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SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD + TENTATIVE

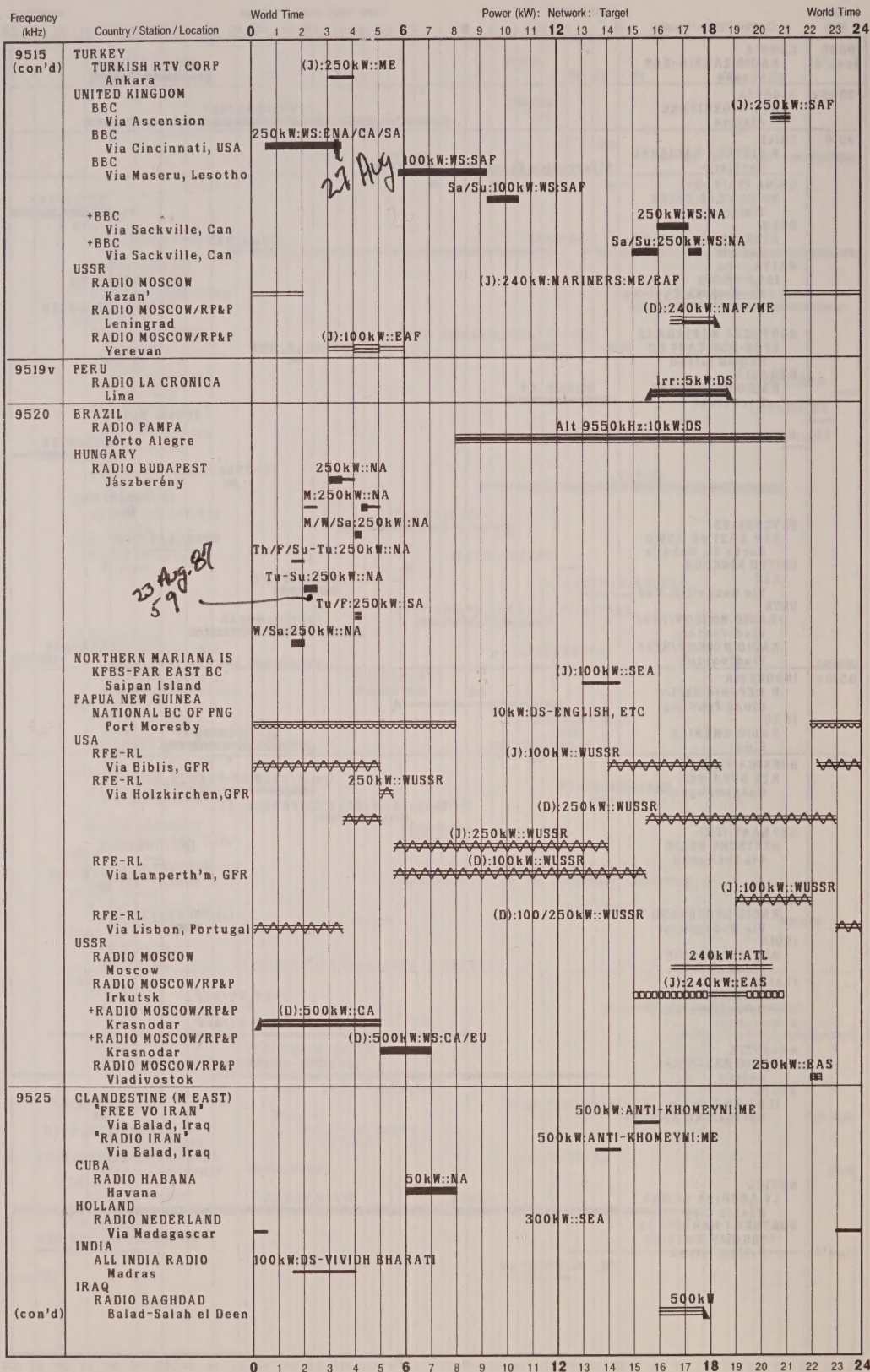


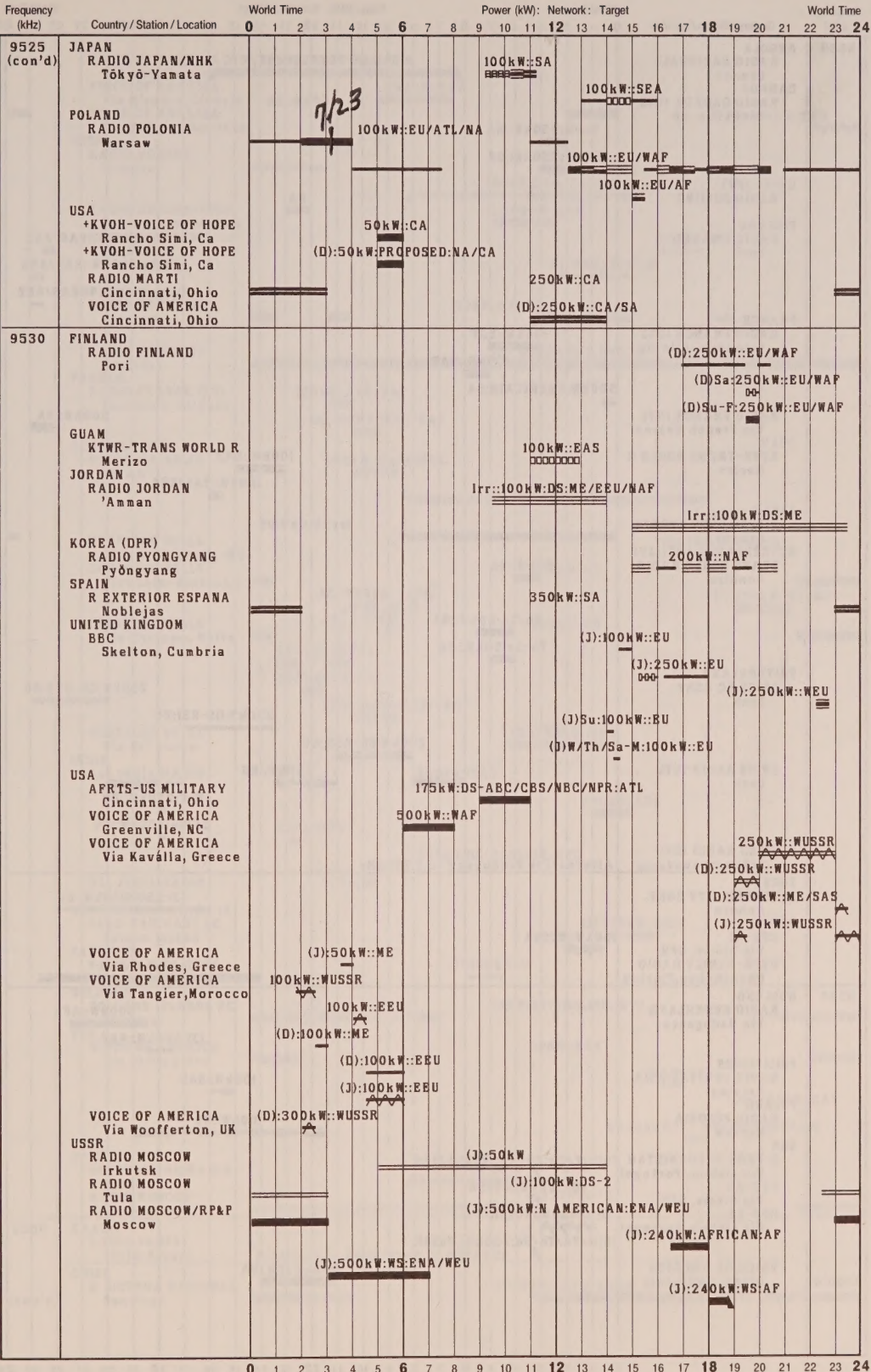
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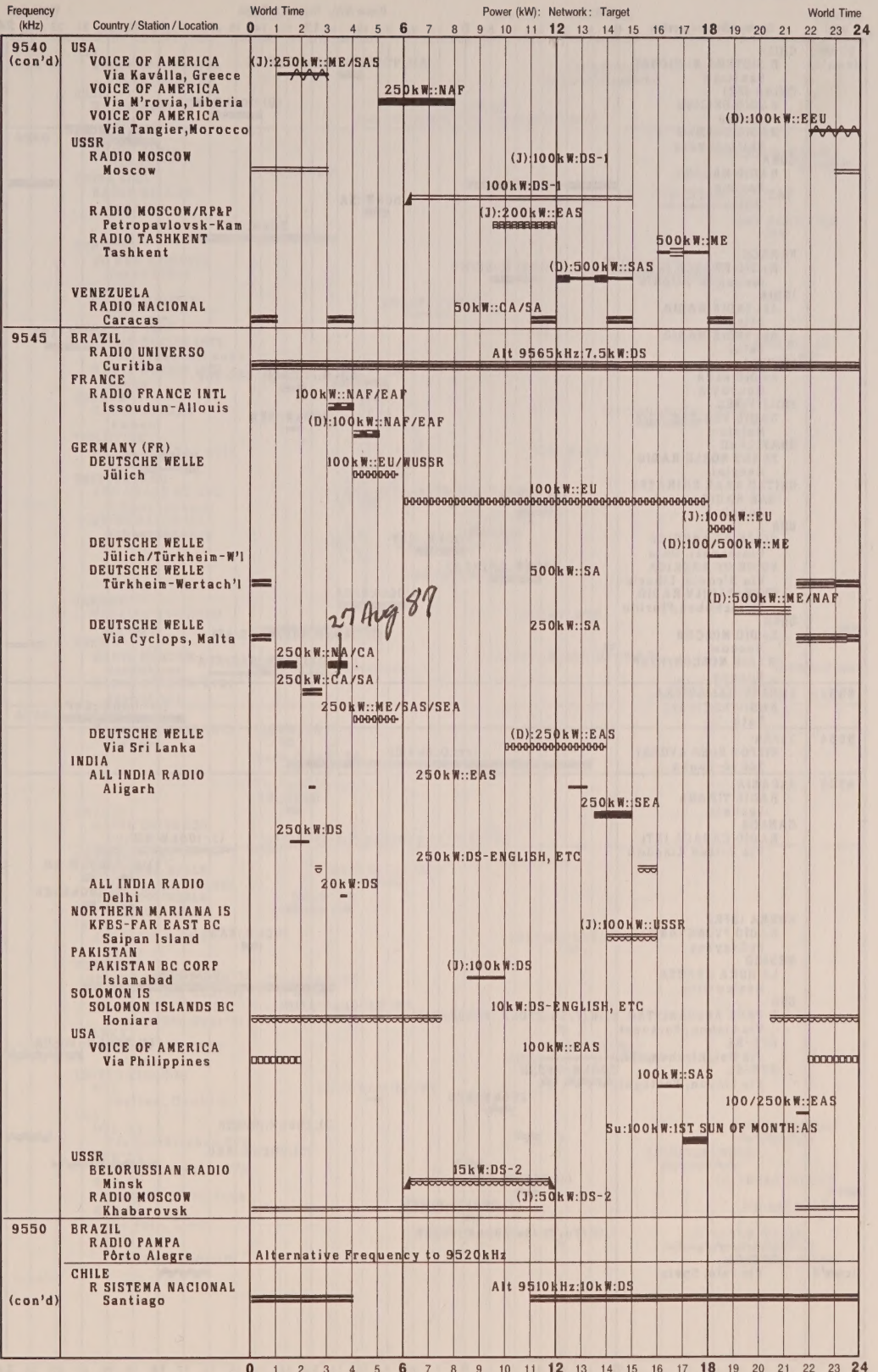
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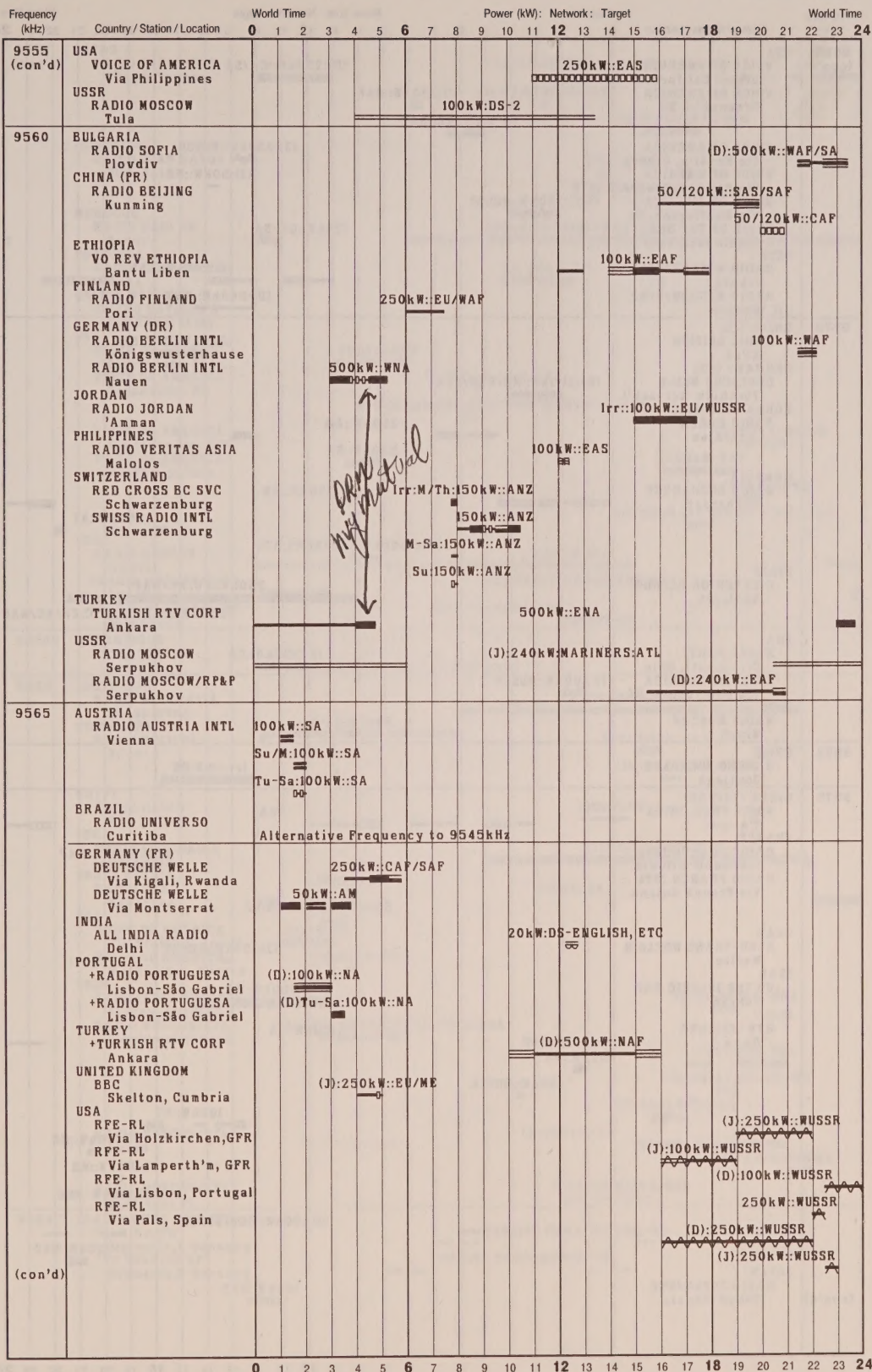
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ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
ARABIC / عَرَبِيّ	RUSSIAN / РУССКИЙ	CHINESE / 中文	JAPANESE / 日本語	MULTILINGUAL
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				+ TENTATIVE



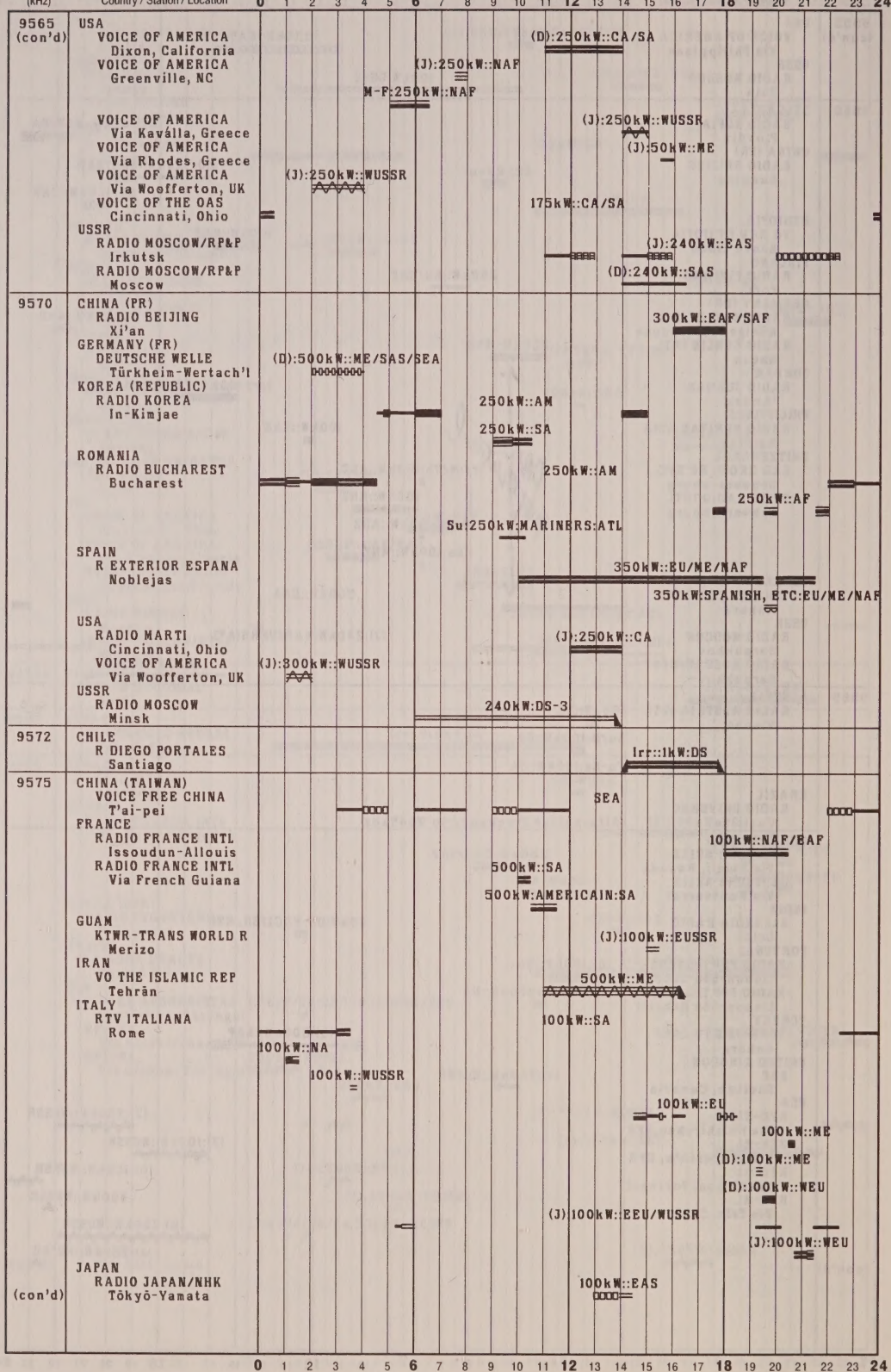
Frequency
(kHz)

Country / Station / Location

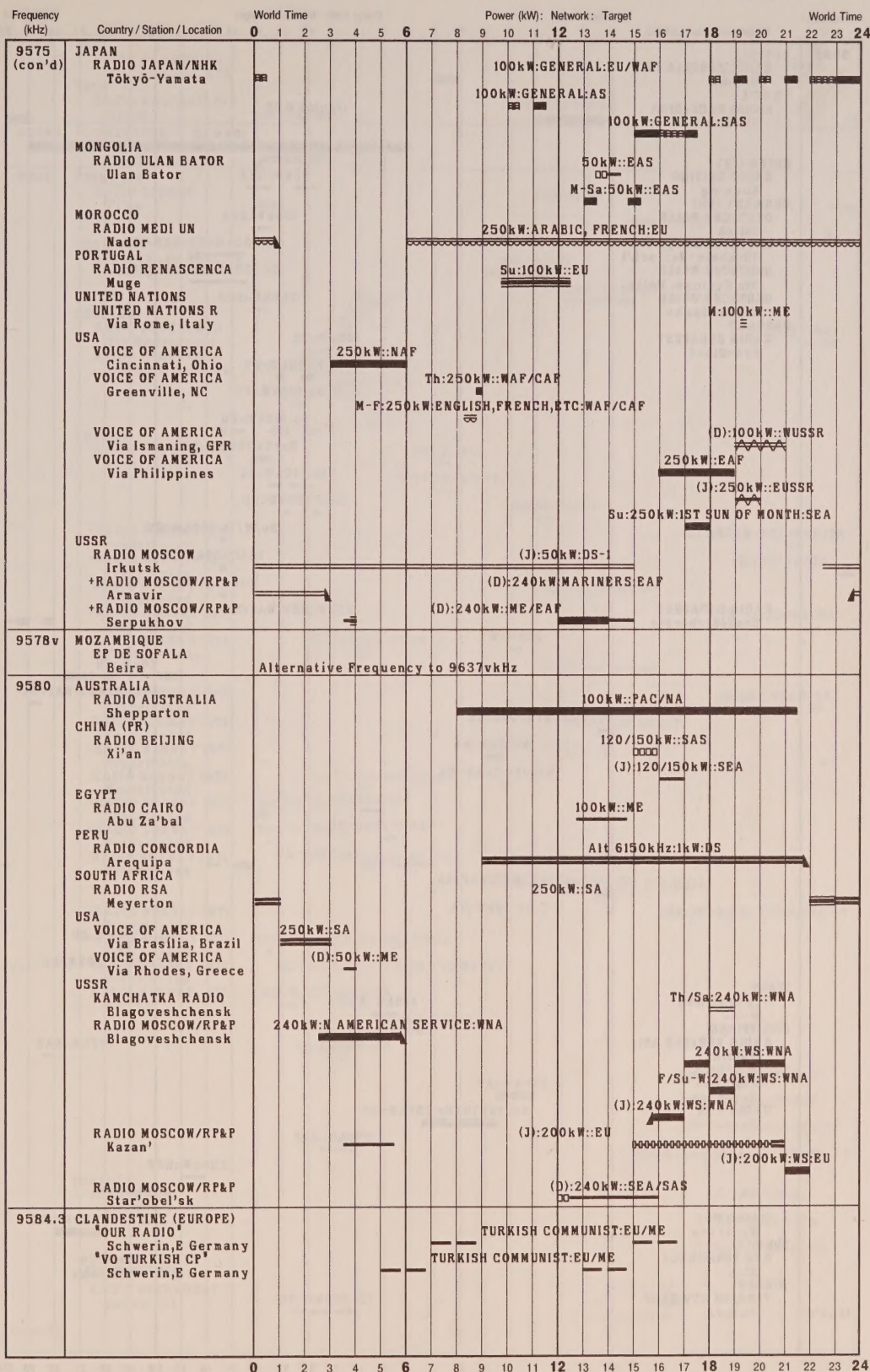
World Time

Power (kW): Network: Target

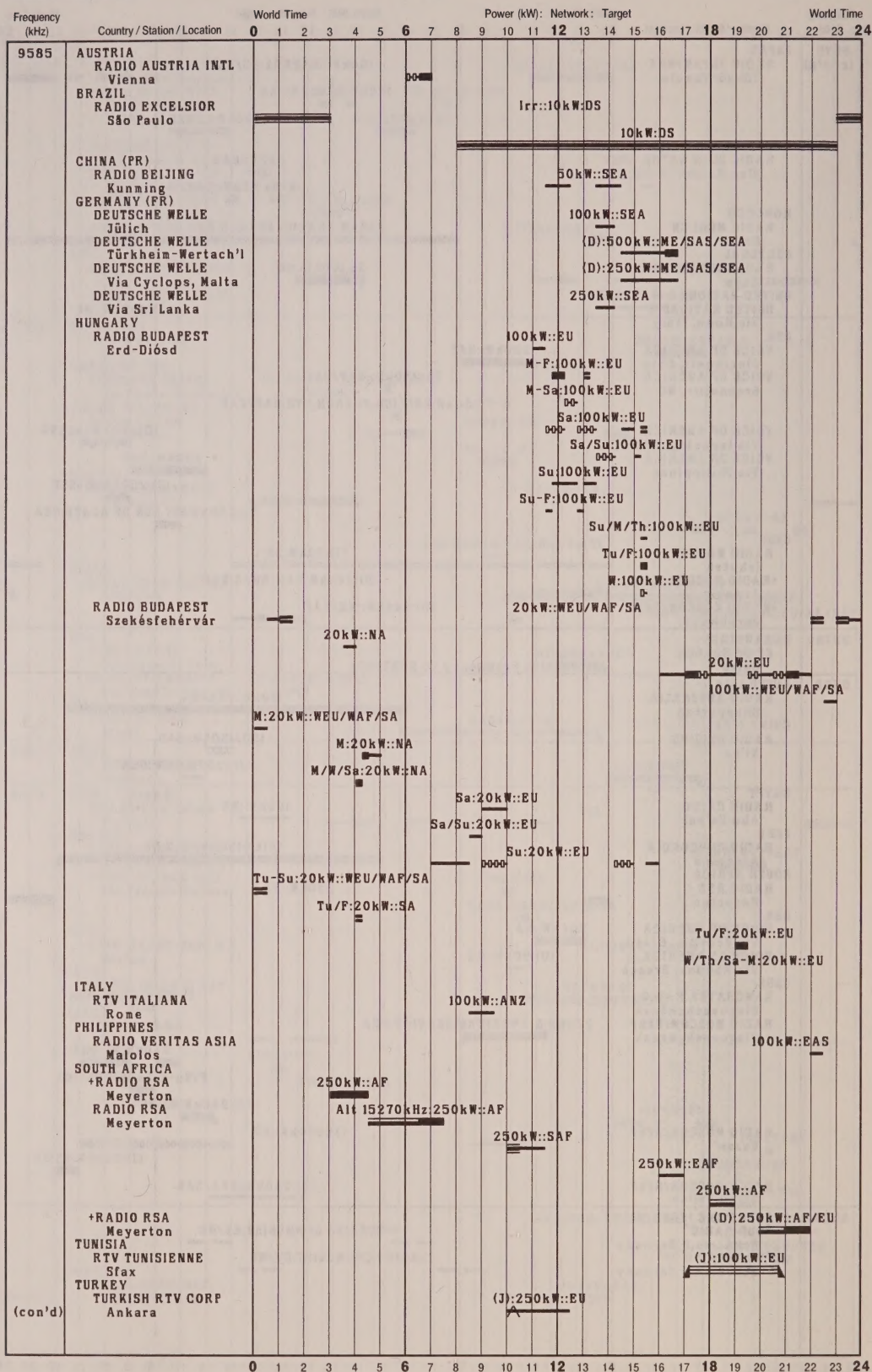
World Time



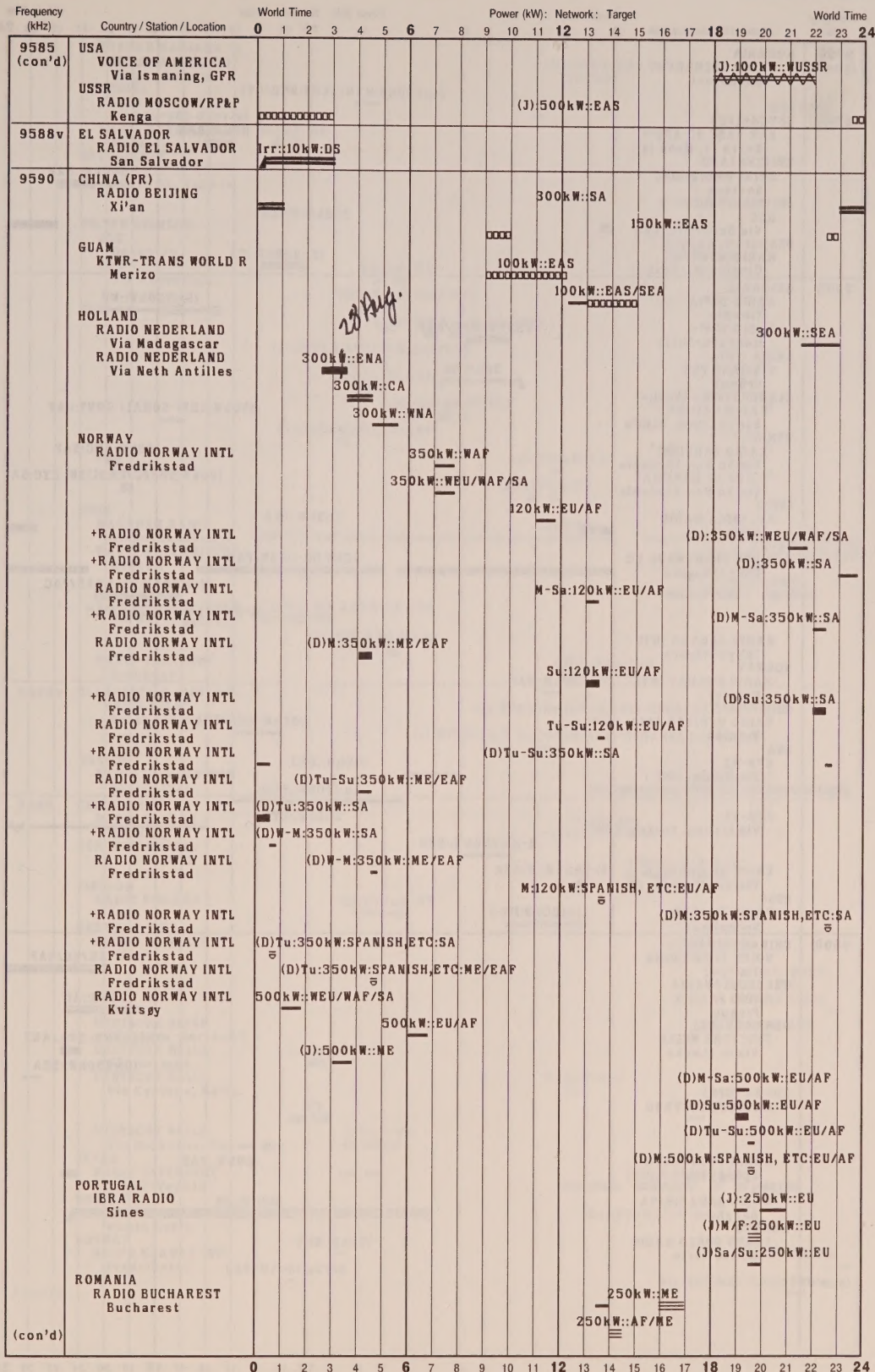
ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ٠٠٠ — RUSSIAN / РУССКИЙ — CHINESE / 中 文 — JAPANESE / 日 本 語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

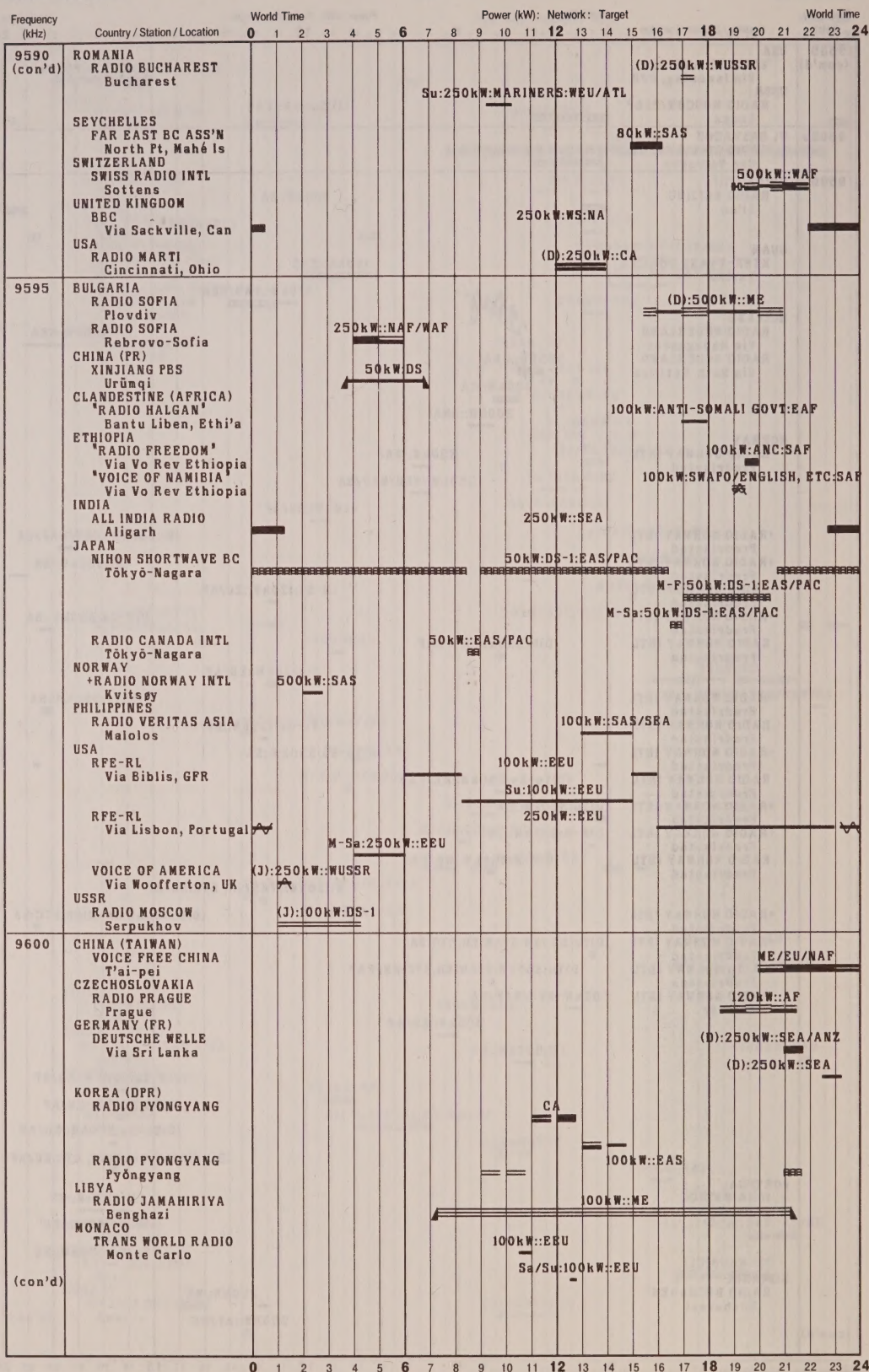


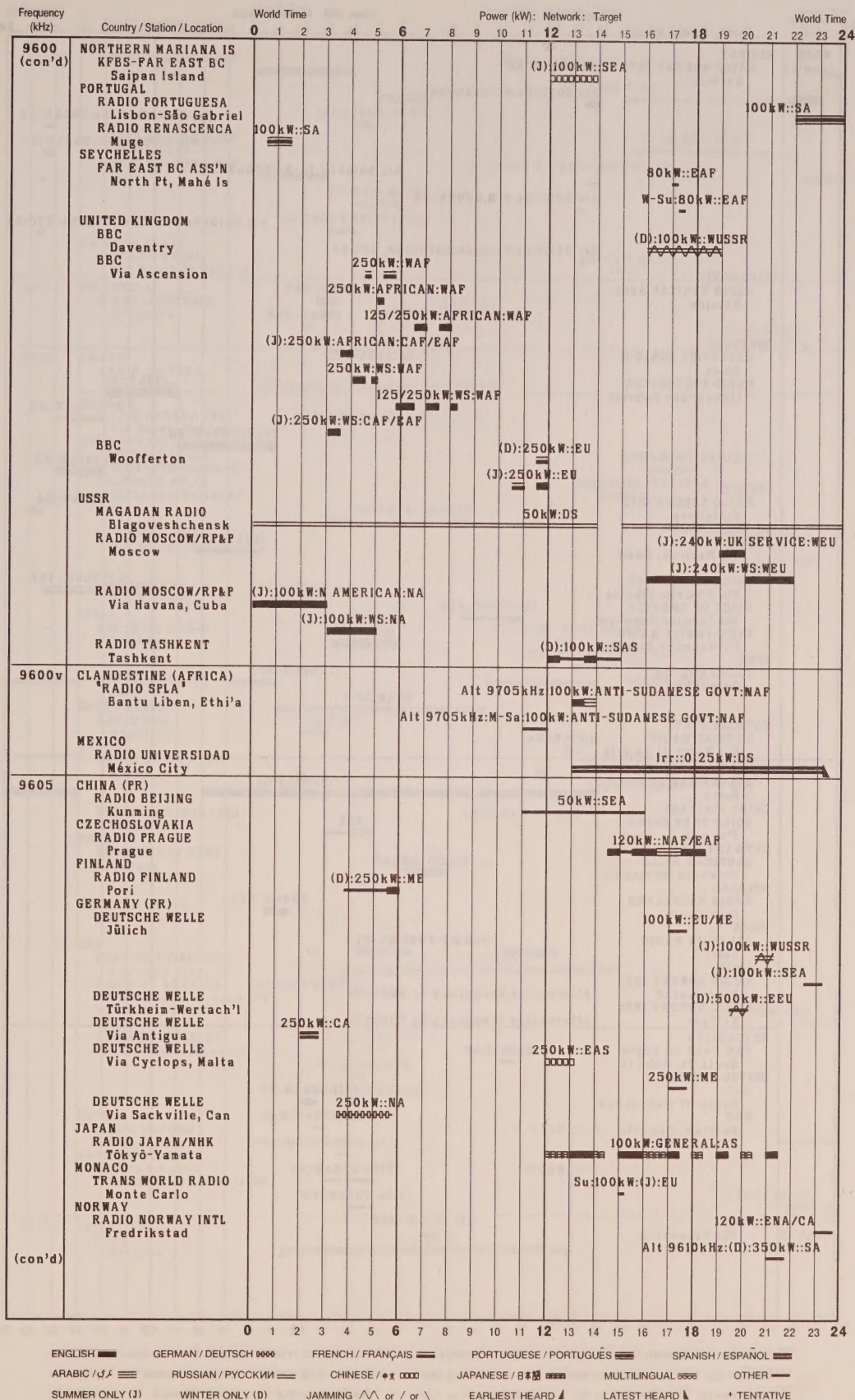
ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ٱ — RUSSIAN / РУССКИЙ — CHINESE / 中 — JAPANESE / 日 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

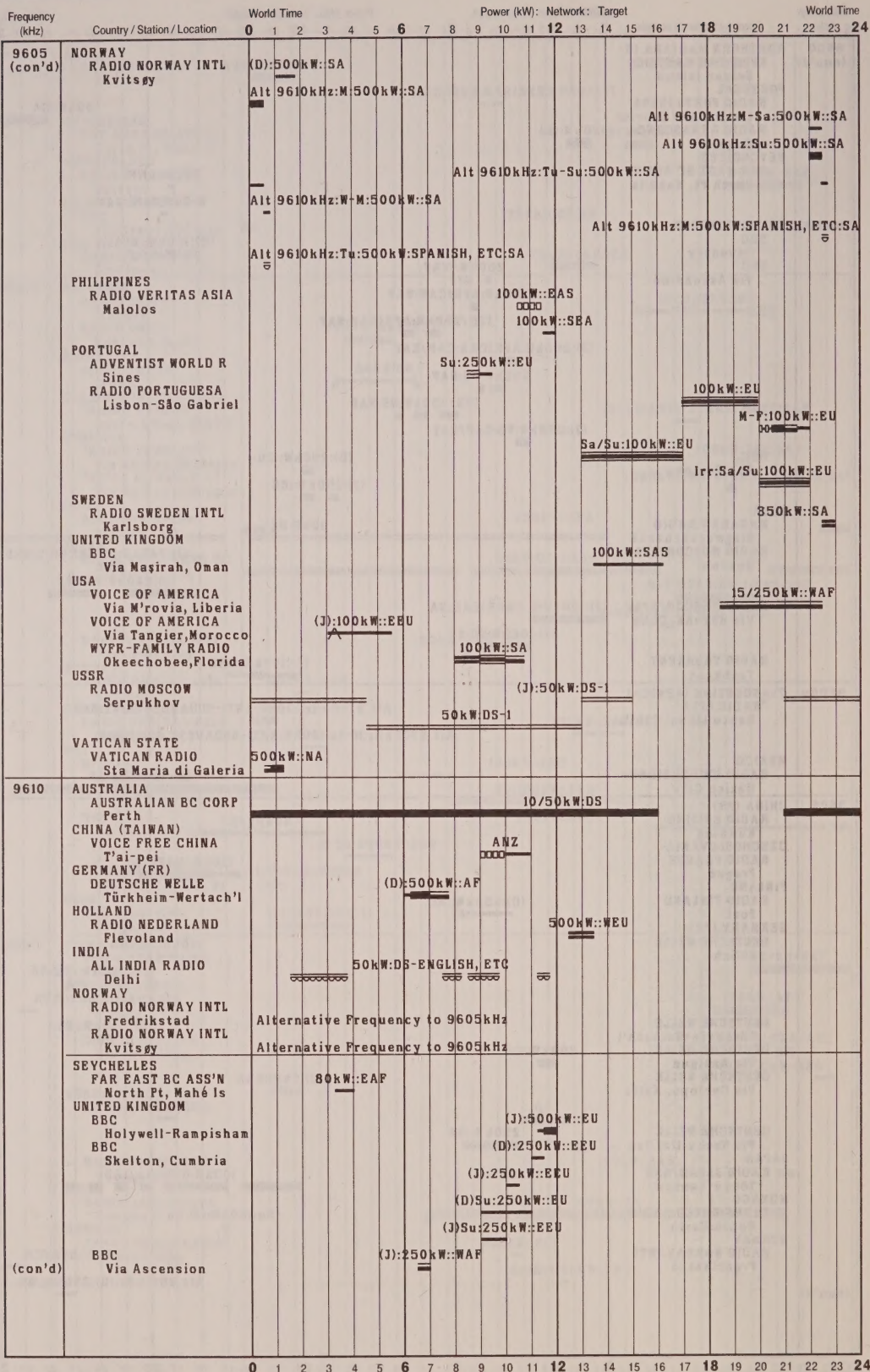


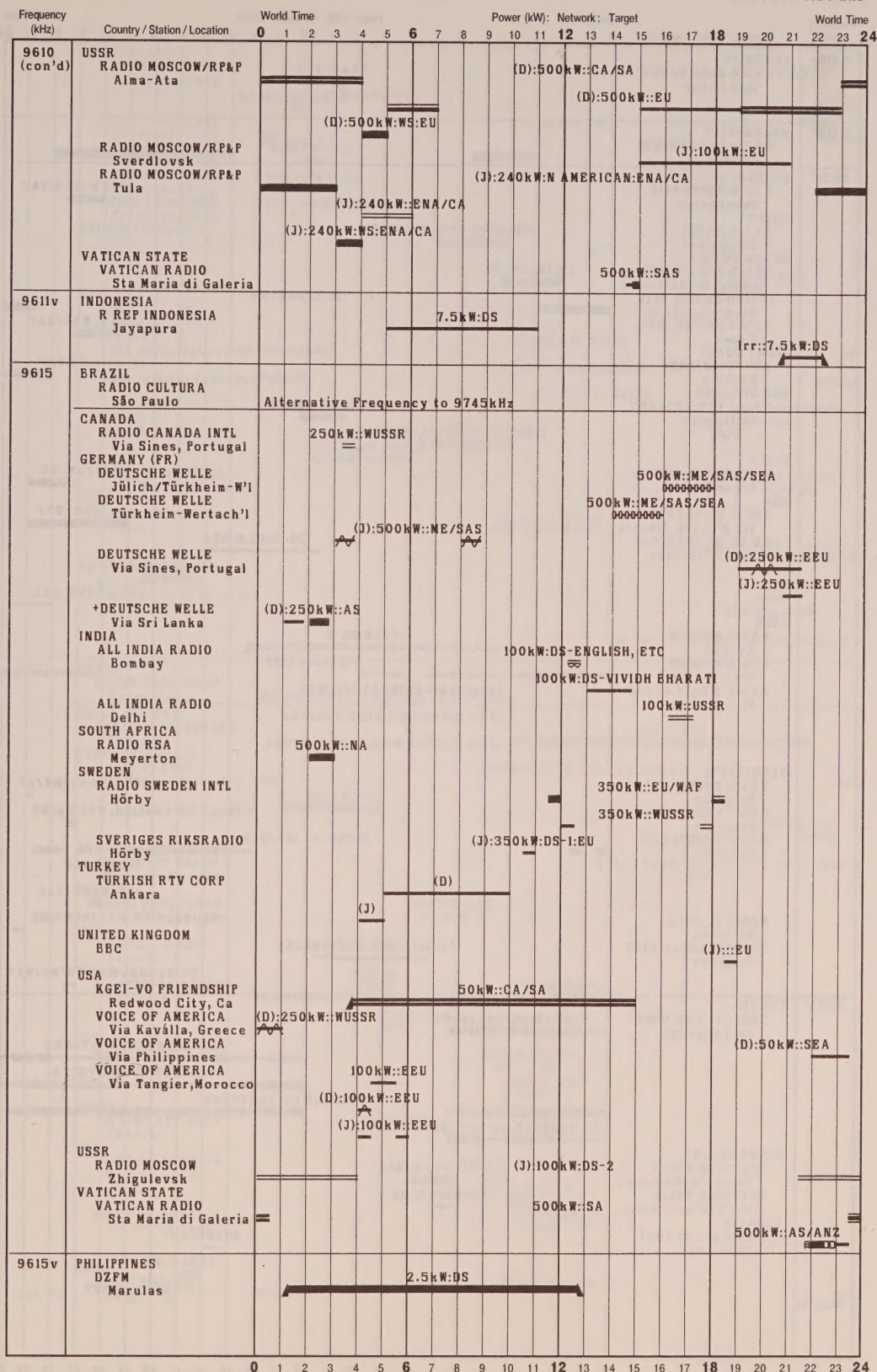
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 ARABIC / ٤٥ — RUSSIAN / РУССКИЙ — CHINESE / 中 — JAPANESE / 日 — MULTILINGUAL — OTHER —
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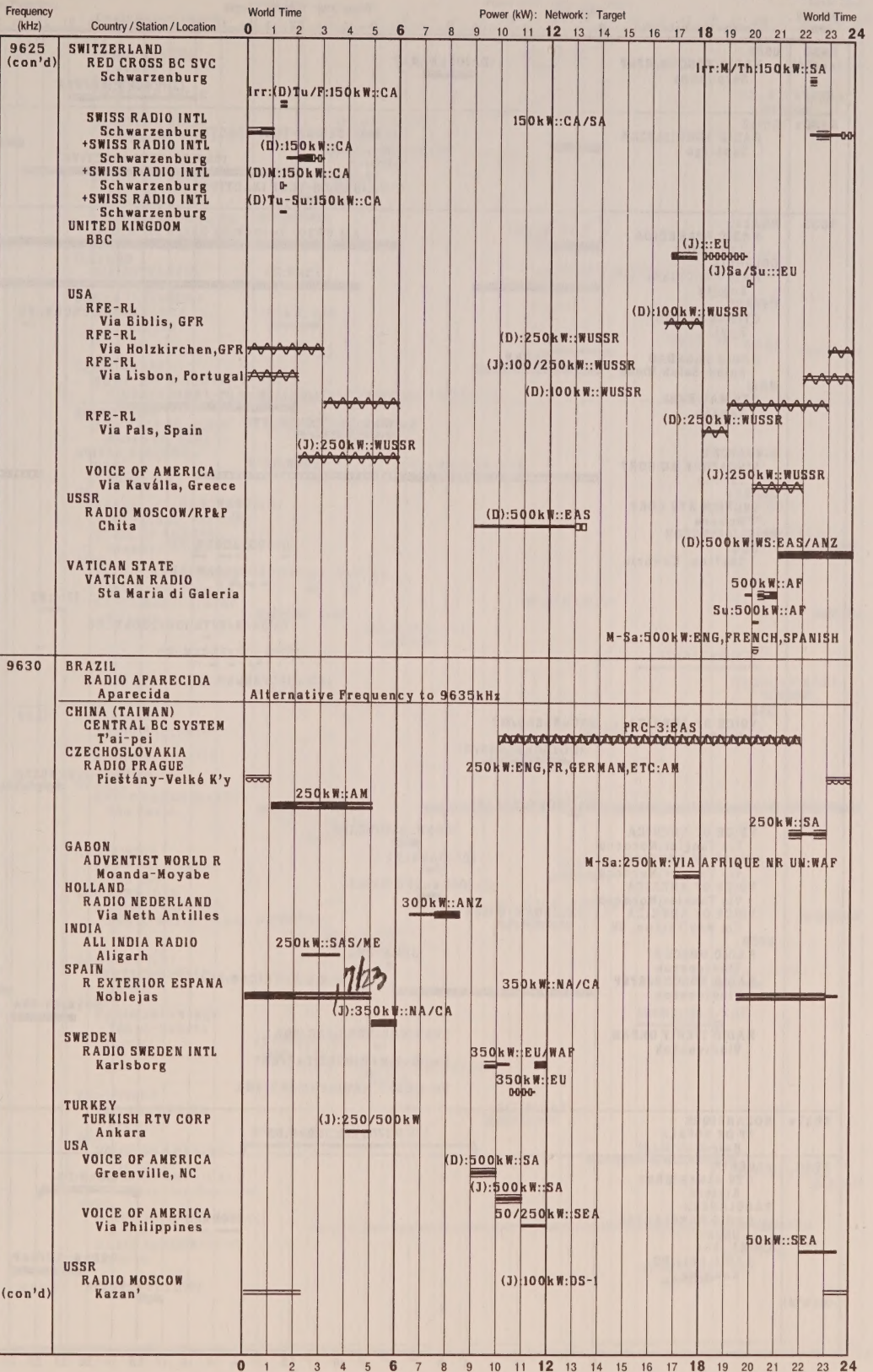


ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —

ARABIC / ١٢ — RUSSIAN / РУССКИЙ — CHINESE / 中文 — JAPANESE / 日本語 — MULTILINGUAL 0000 OTHER —

SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

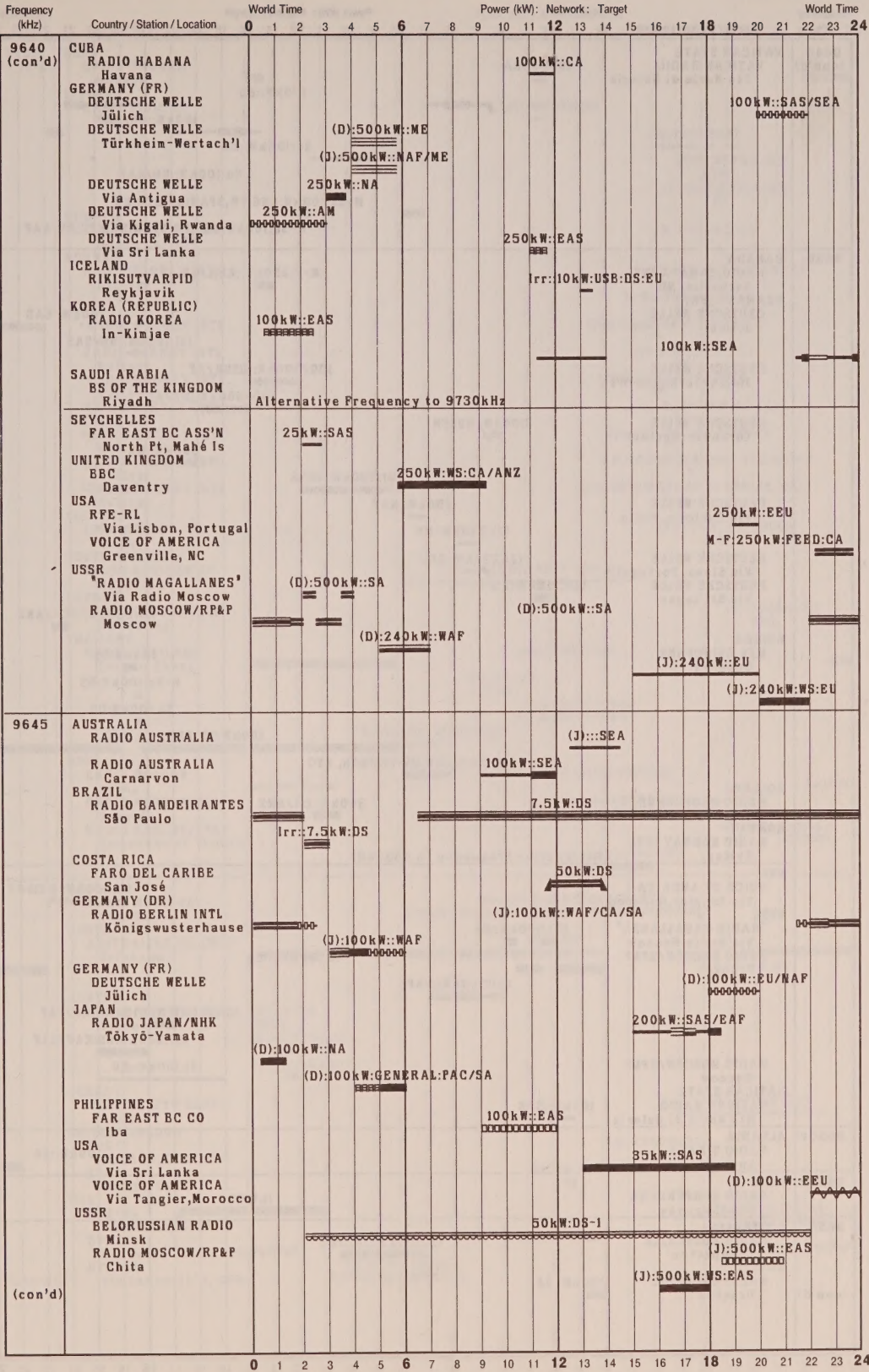
ENGLISH  GERMAN / DEUTSCH  FRENCH / FRANÇAIS  PORTUGUESE / PORTUGUÊS  SPANISH / ESPAÑOL 
ARABIC /  RUSSIAN / РУССКИЙ  CHINESE / 中文  JAPANESE / 日本語  MULTILINGUAL  OTHER 
SUMMER ONLY (3) WINTER ONLY (4) JAMMING      EARLIEST HEARD  LATEST HEARD  + TENTATIVE

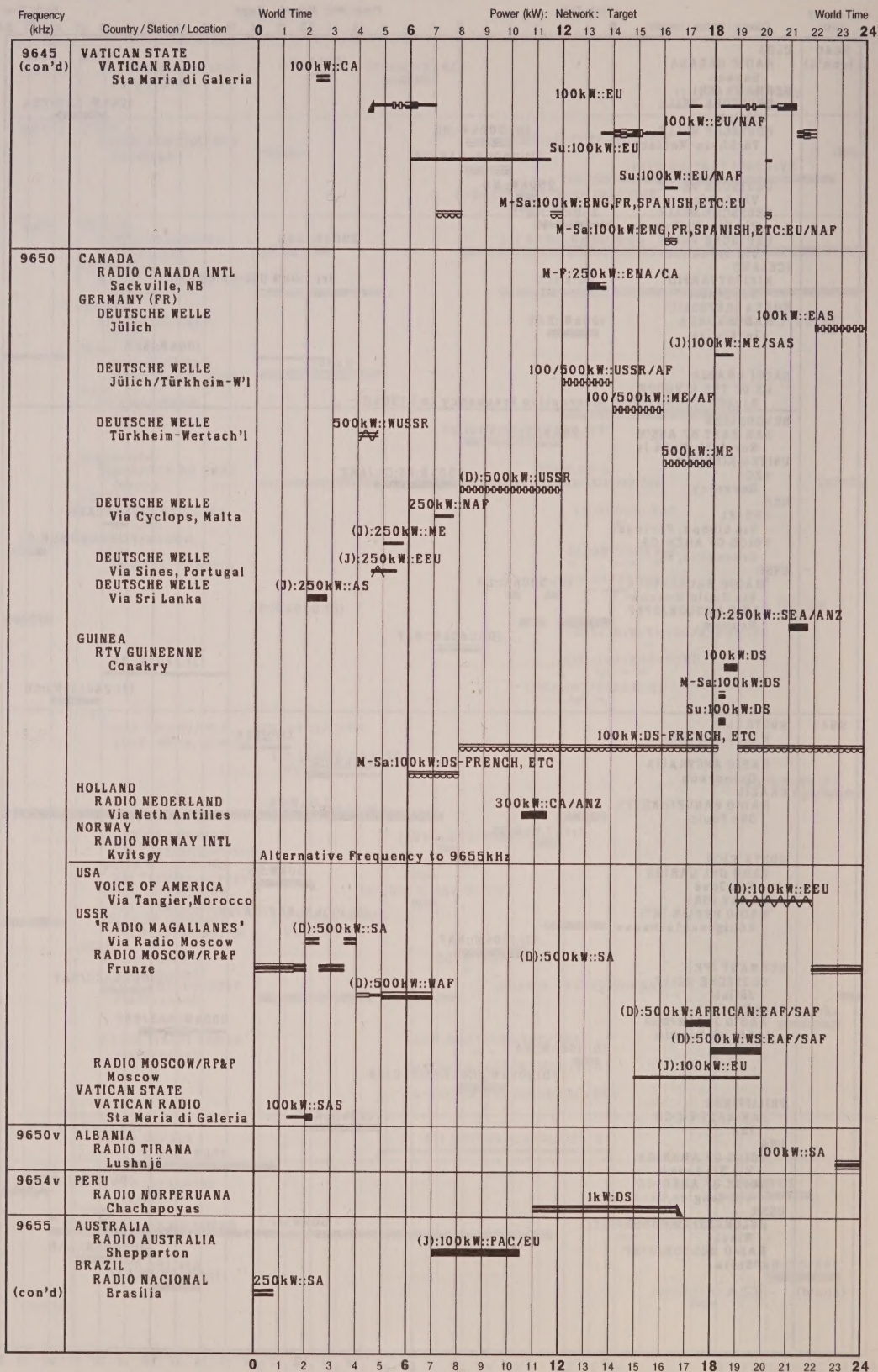


ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD + TENTATIVE

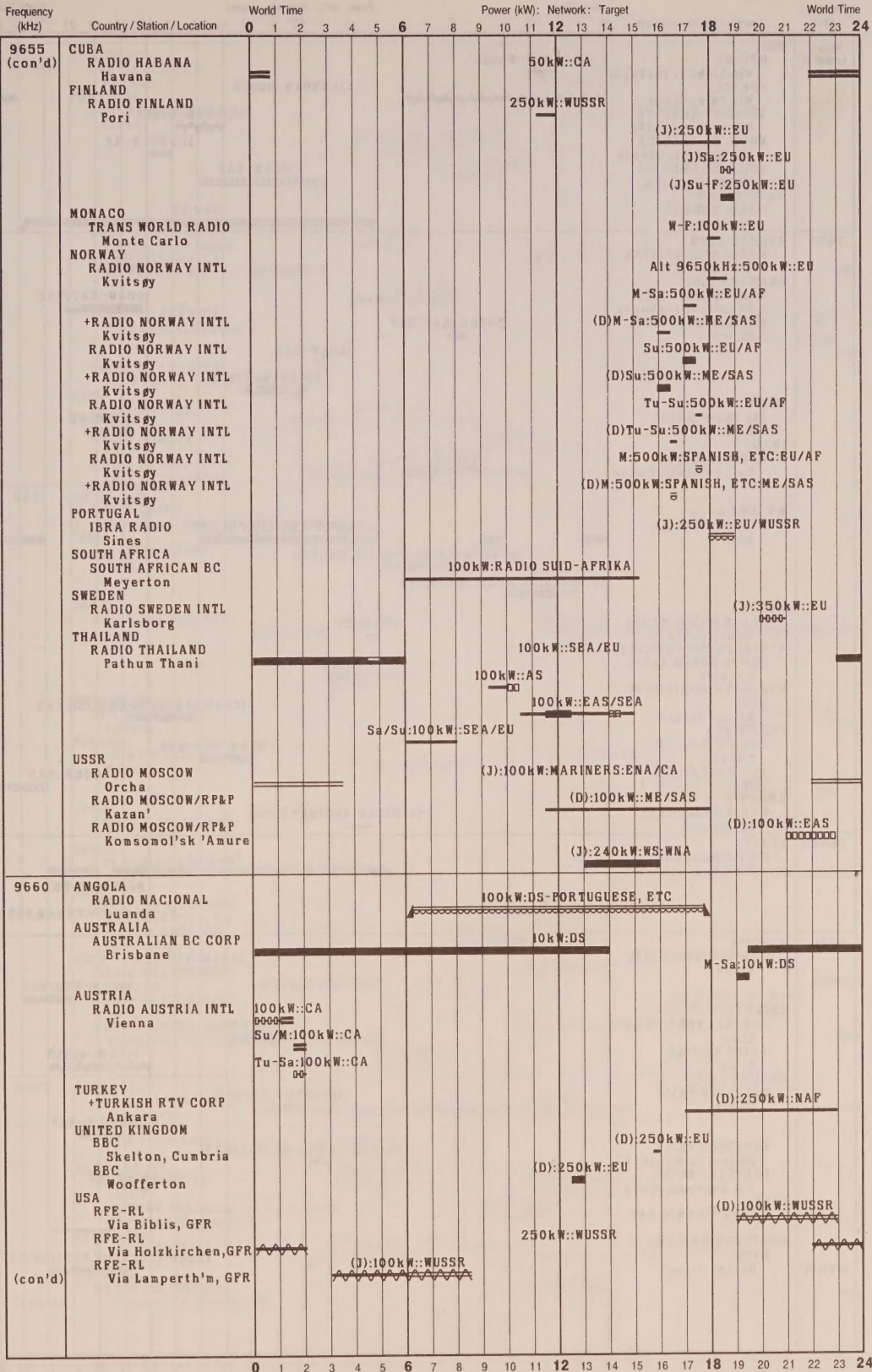
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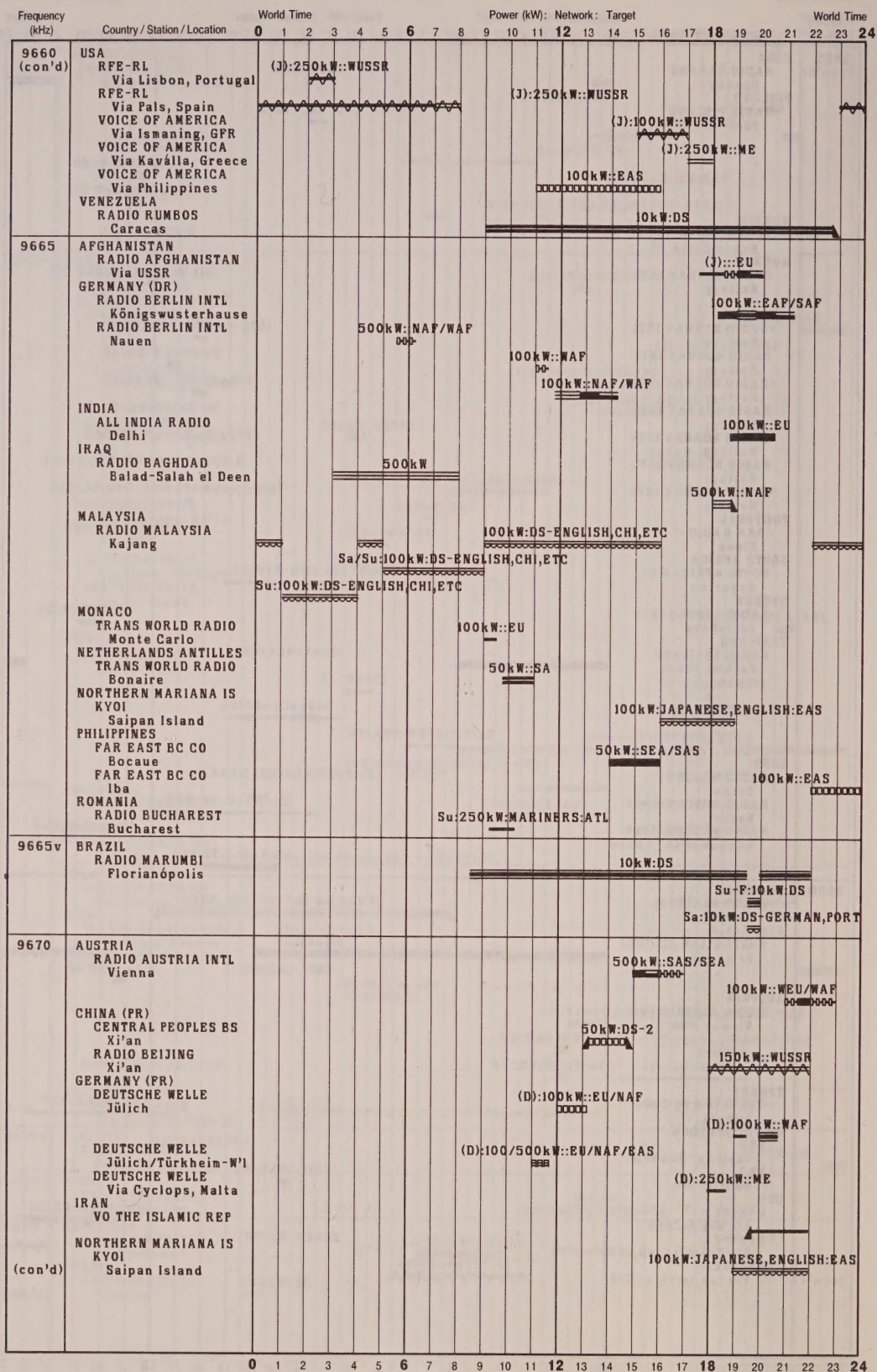
ENGLISH  GERMAN / DEUTSCH  FRENCH / FRANÇAIS  PORTUGUESE / PORTUGUÊS  SPANISH / ESPAÑOL
ARABIC /  RUSSIAN / РУССКИЙ  CHINESE / 中文  JAPANESE / 日本語  MULTILINGUAL OTHER
SUMMER ONLY (J) WINTER ONLY (D) JAMMING  or / or \ EARLIEST HEARD  LATEST HEARD  + TENTATIVE





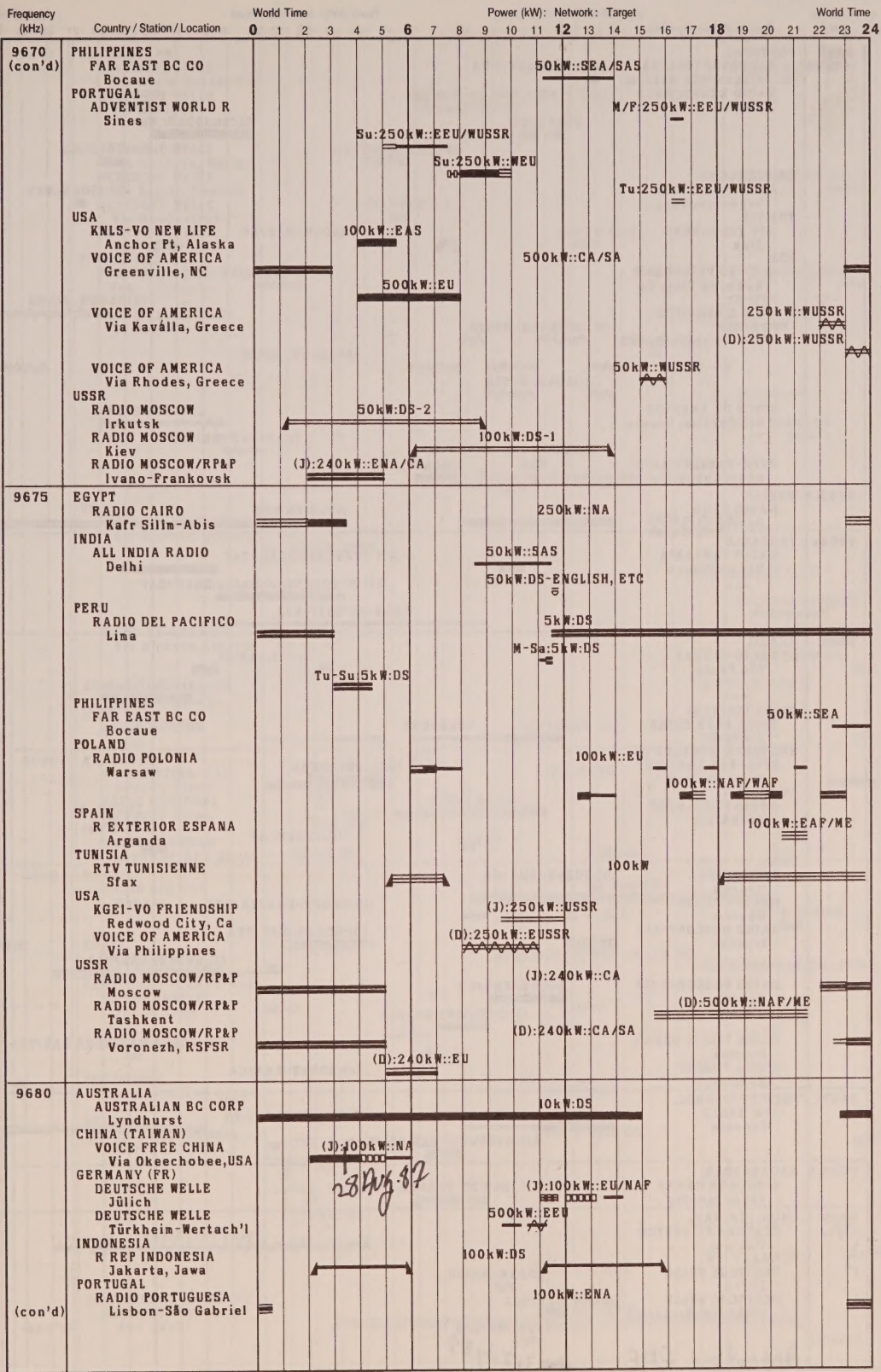
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
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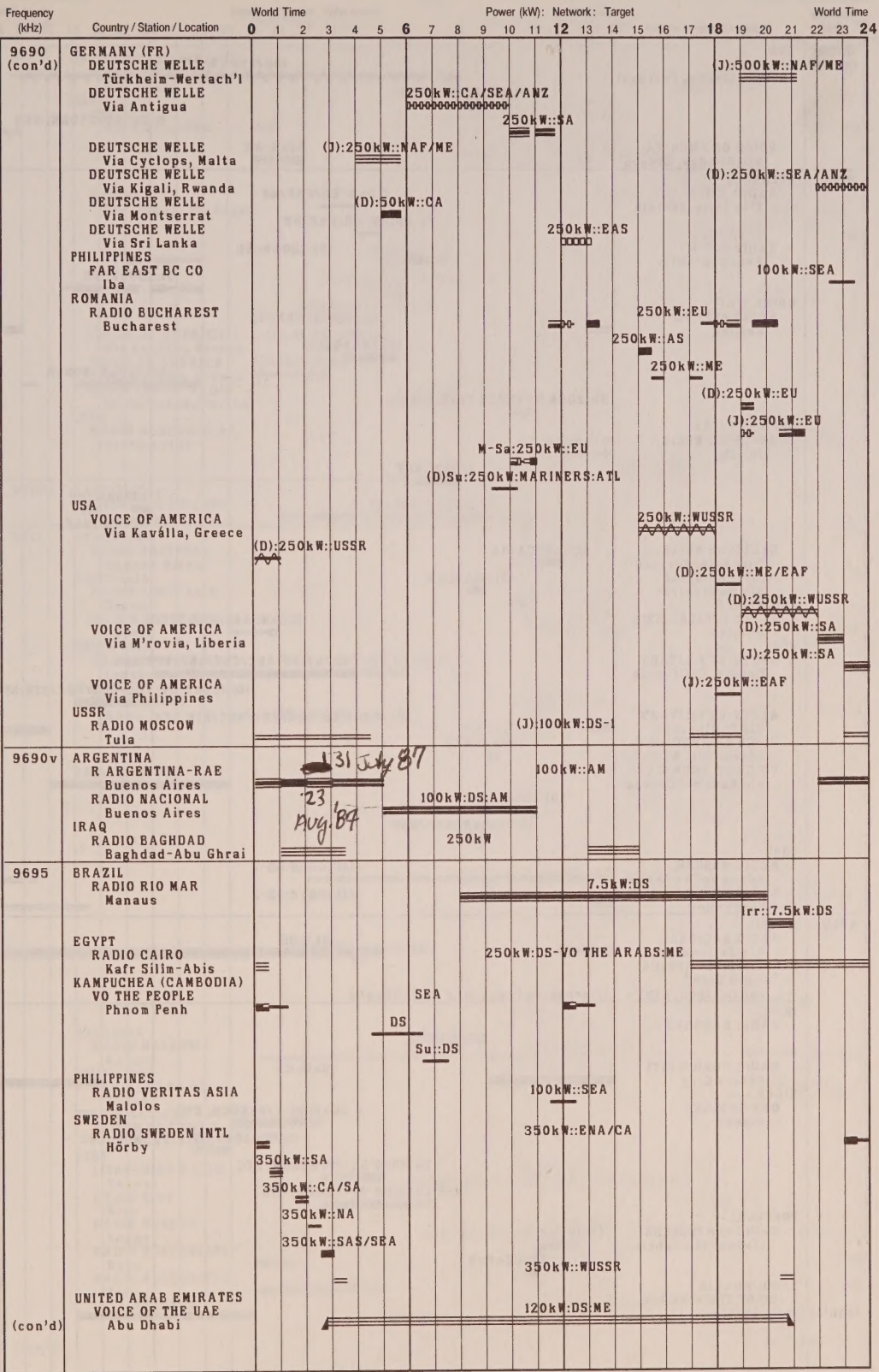


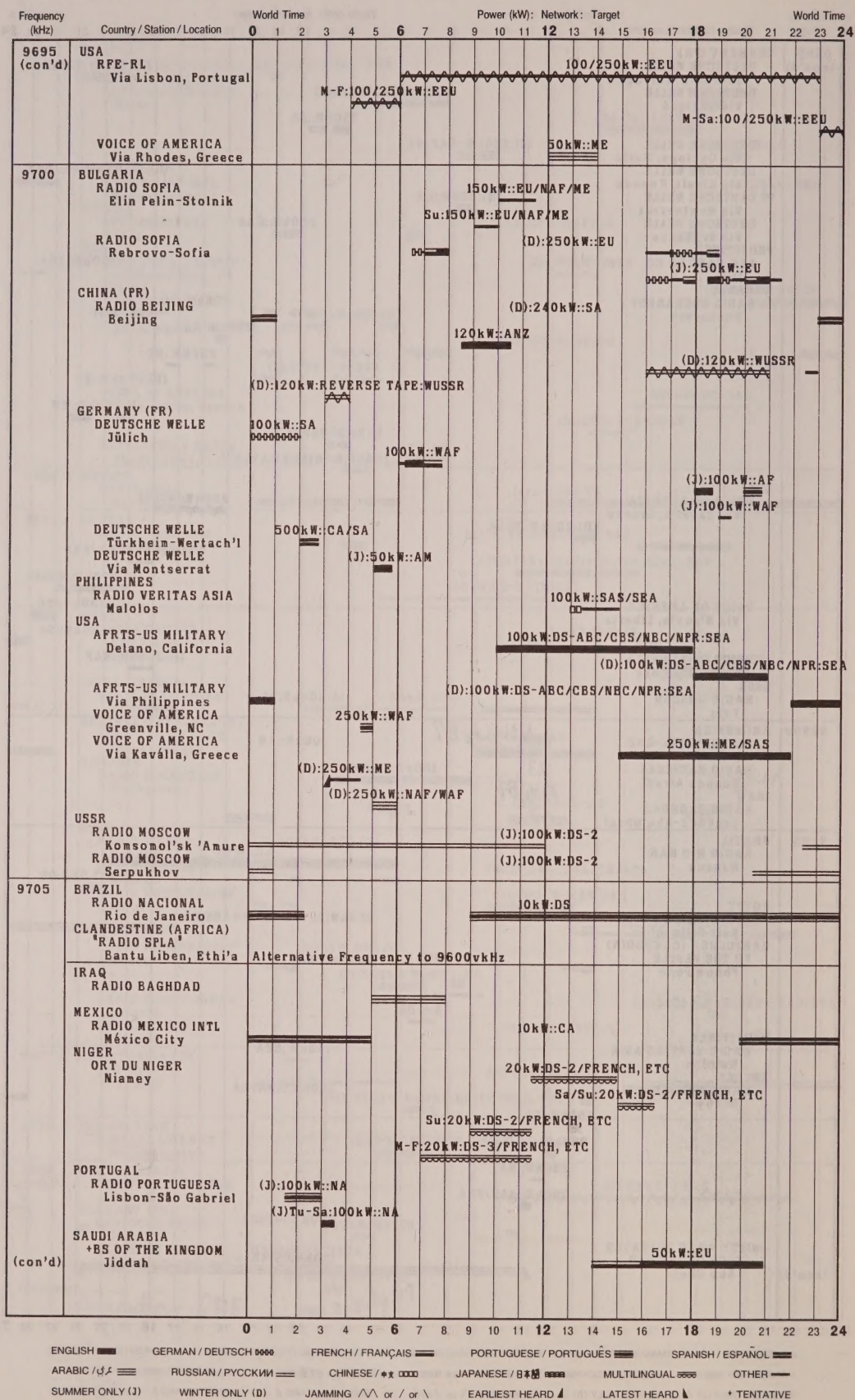
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ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ١٢٣ — RUSSIAN / РУССКИЙ — CHINESE / 中 — JAPANESE / 日 — MULTILINGUAL — OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

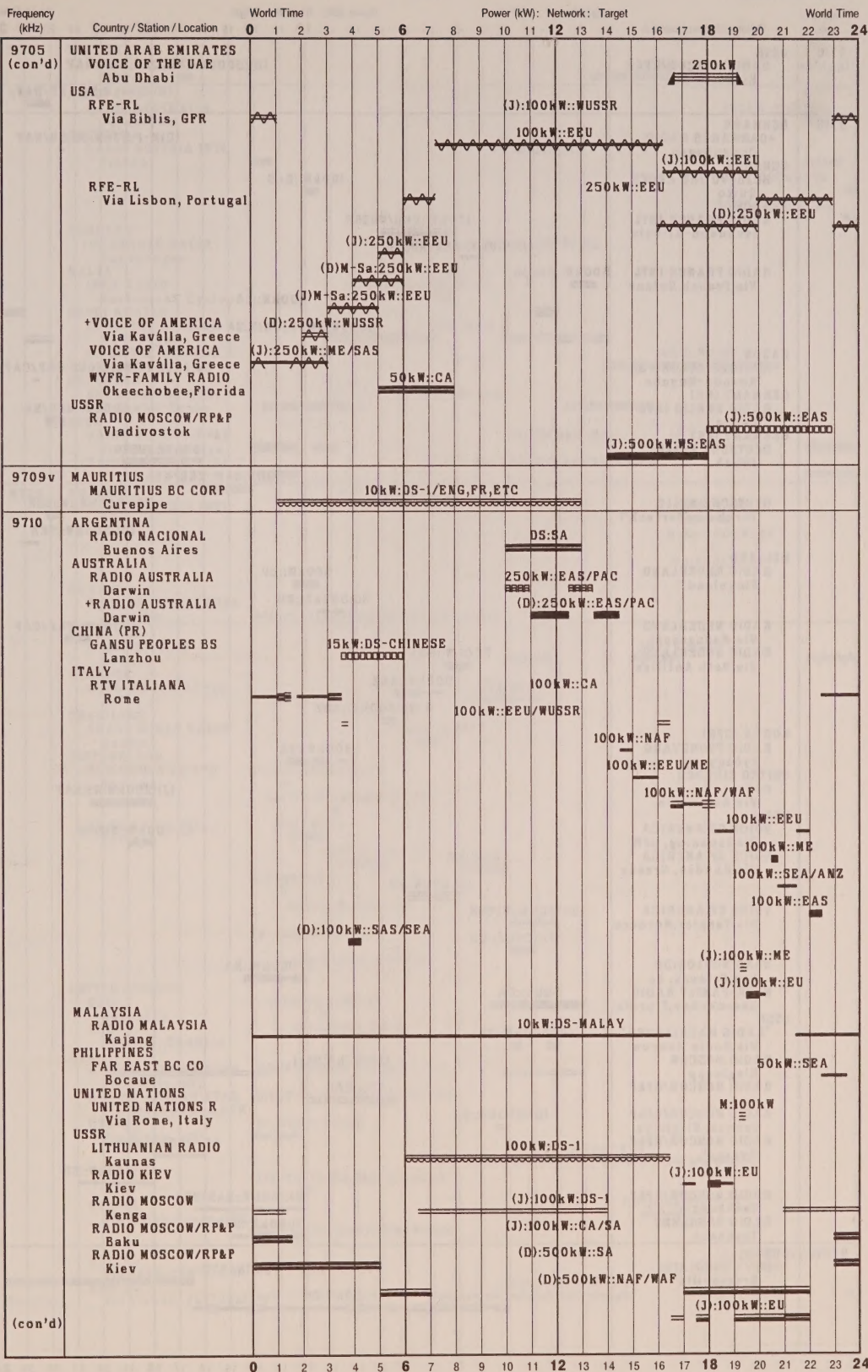


ENGLISH  GERMAN / DEUTSCH  FRENCH / FRANÇAIS  PORTUGUESE / PORTUGUÊS  SPANISH / ESPAÑOL 
ARABIC  RUSSIAN / РУССКИЙ  CHINESE / 中文 or 中国  JAPANESE / 日本語  MULTILINGUAL  OTHER 
SUMMER ONLY (3)  WINTER ONLY (1)  JAMMING  or  EARLIEST HEARD  LATEST HEARD  * TENTATIVE

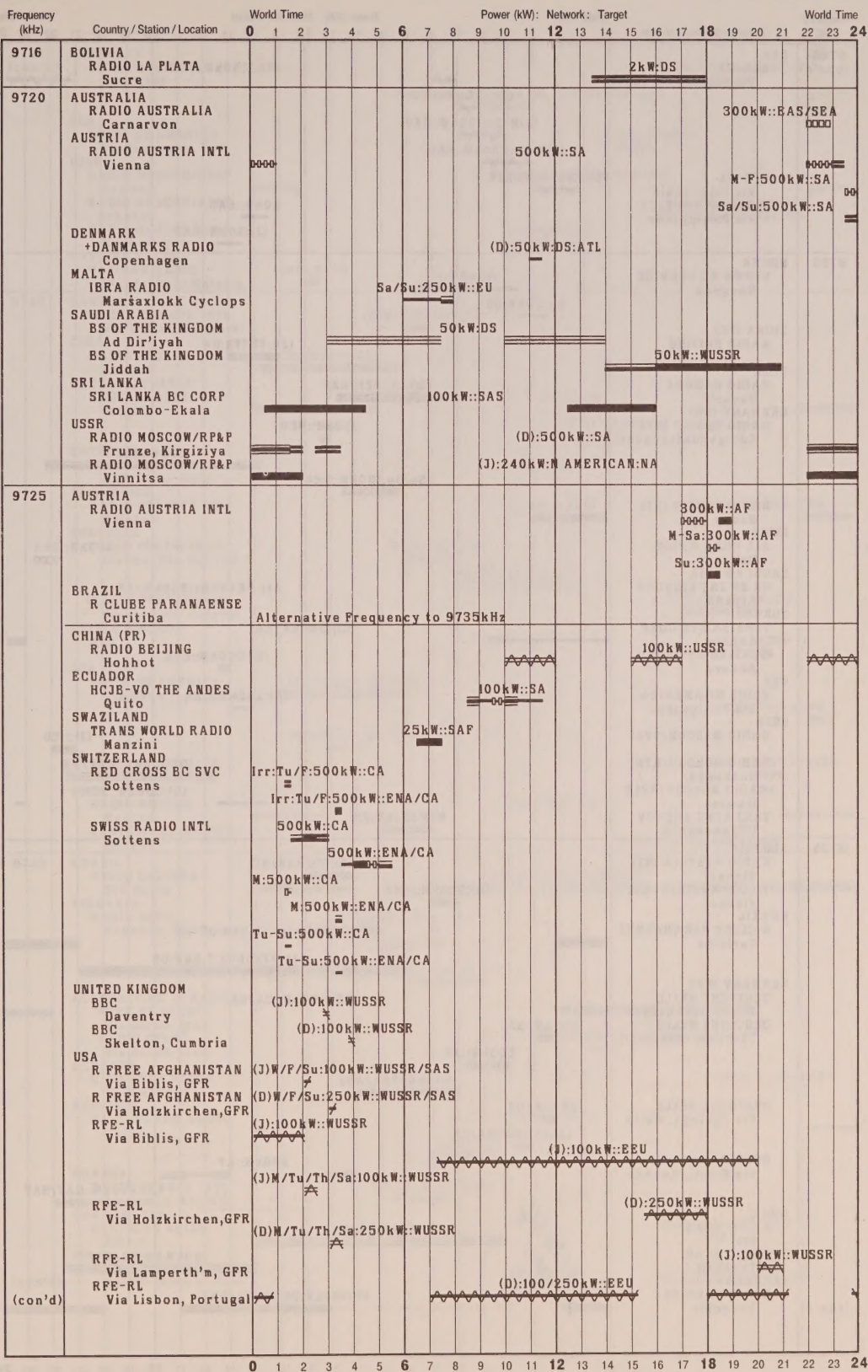




ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
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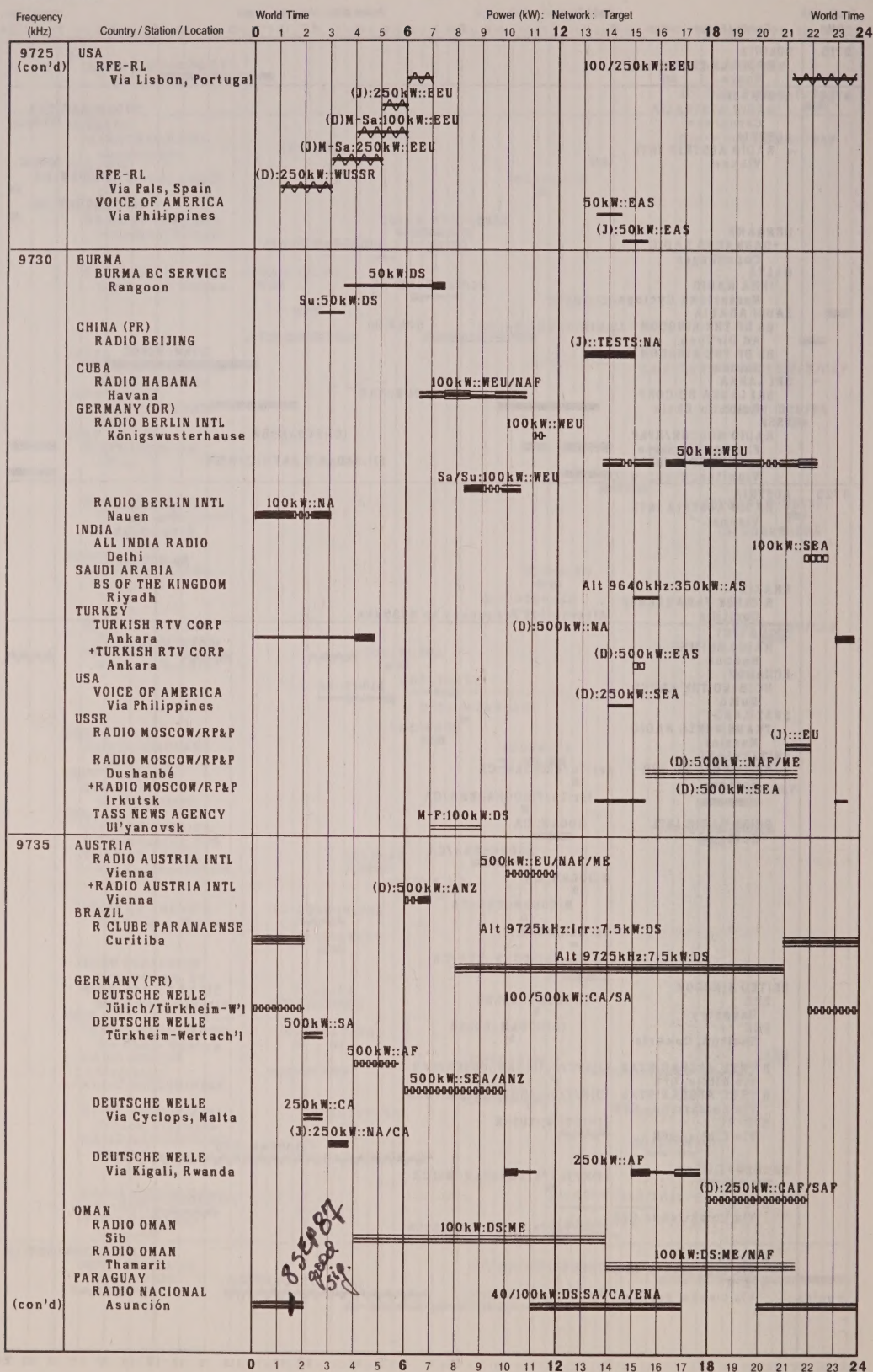
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ARABIC / 	RUSSIAN / РУССКИЙ 	CHINESE / 中文 	JAPANESE / 日本語 	MULTILINGUAL 
SUMMER ONLY (J)	WINTER ONLY (D)	JAMMING or / or /	EARLIEST HEARD	LATEST HEARD
				OTHER
				TENTATIVE

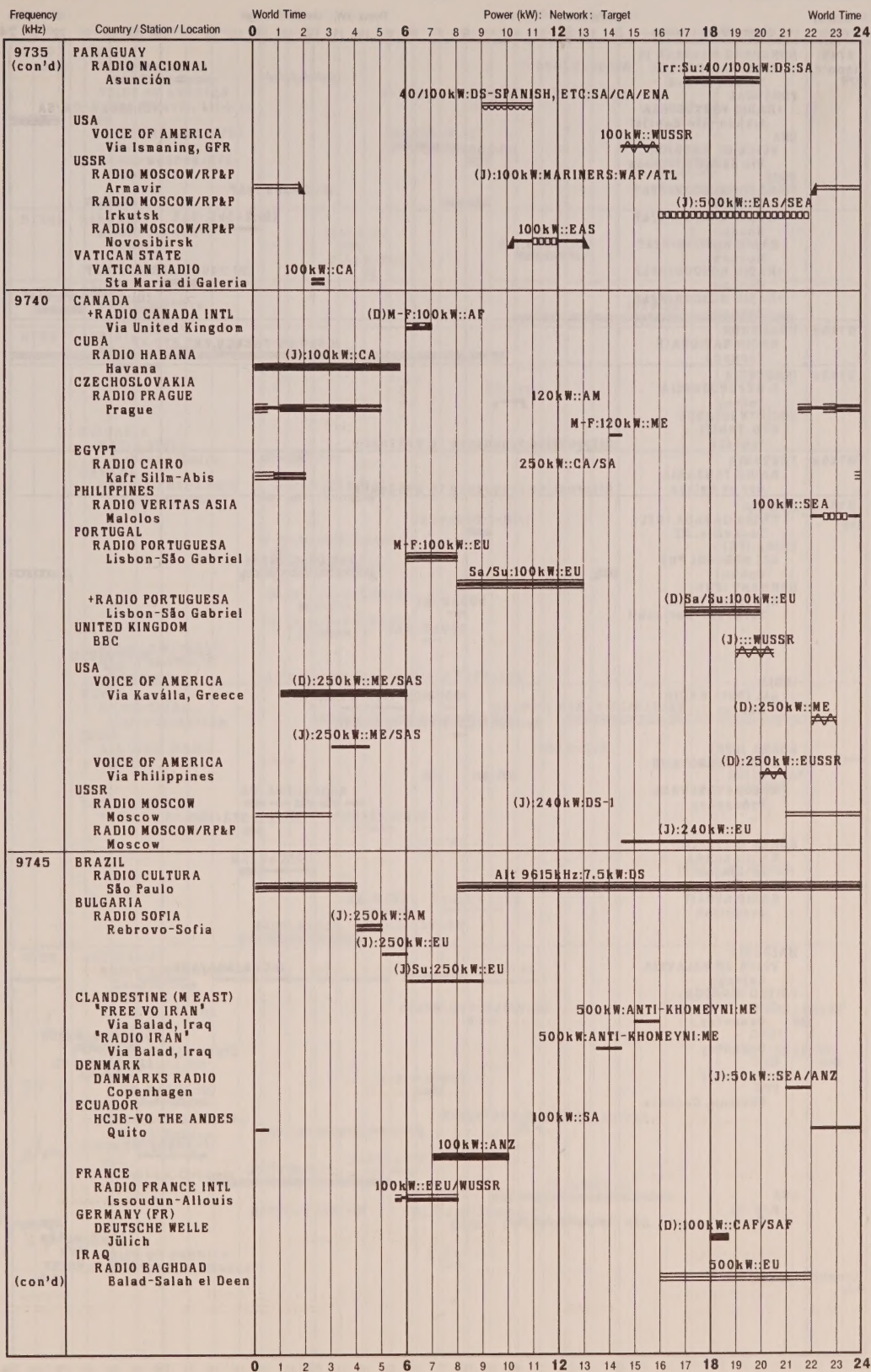


ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —

ARABIC / ٩٧ — RUSSIAN / РУССКИЙ — CHINESE / 中 — JAPANESE / 日 — MULTILINGUAL — OTHER —

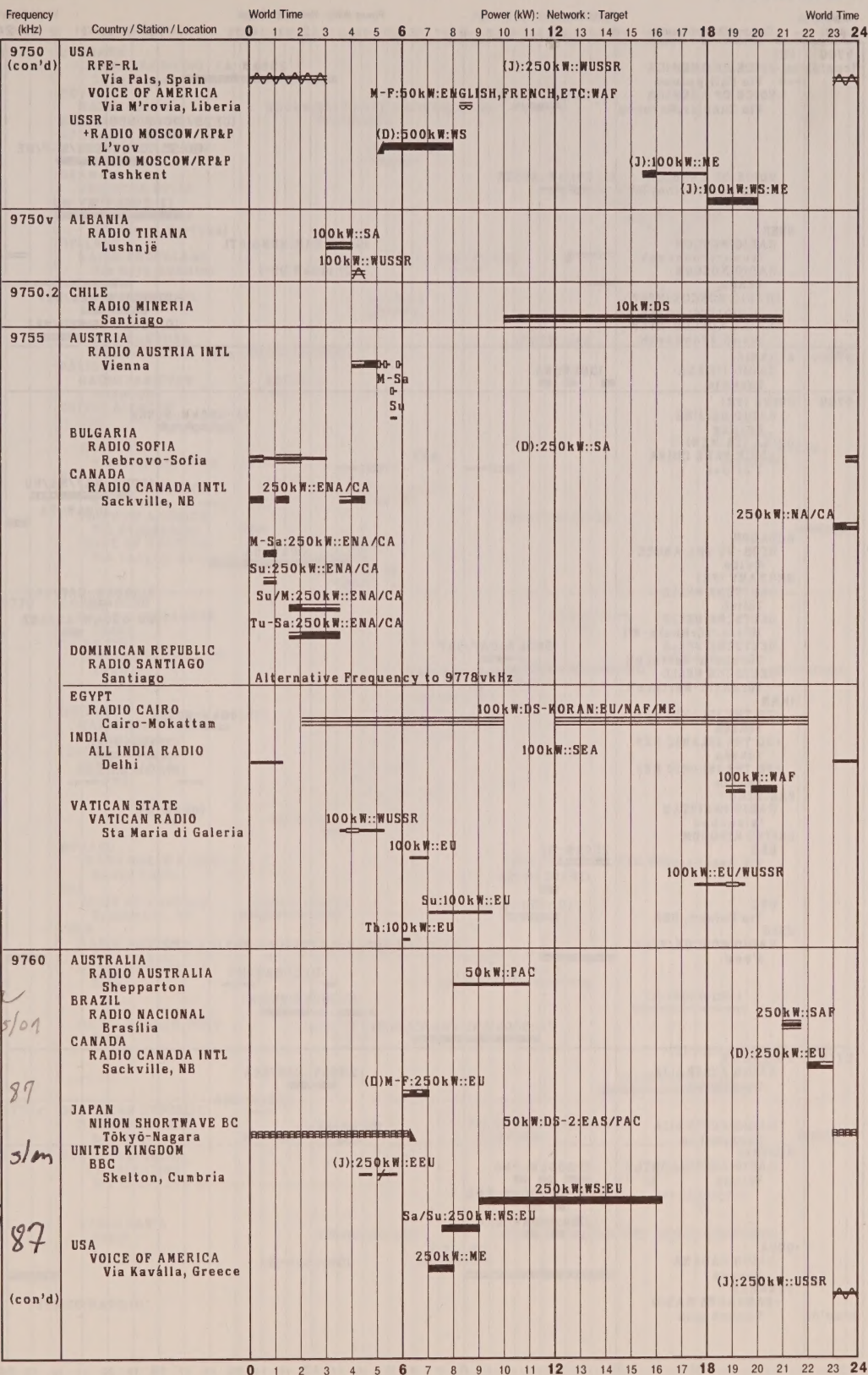
SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



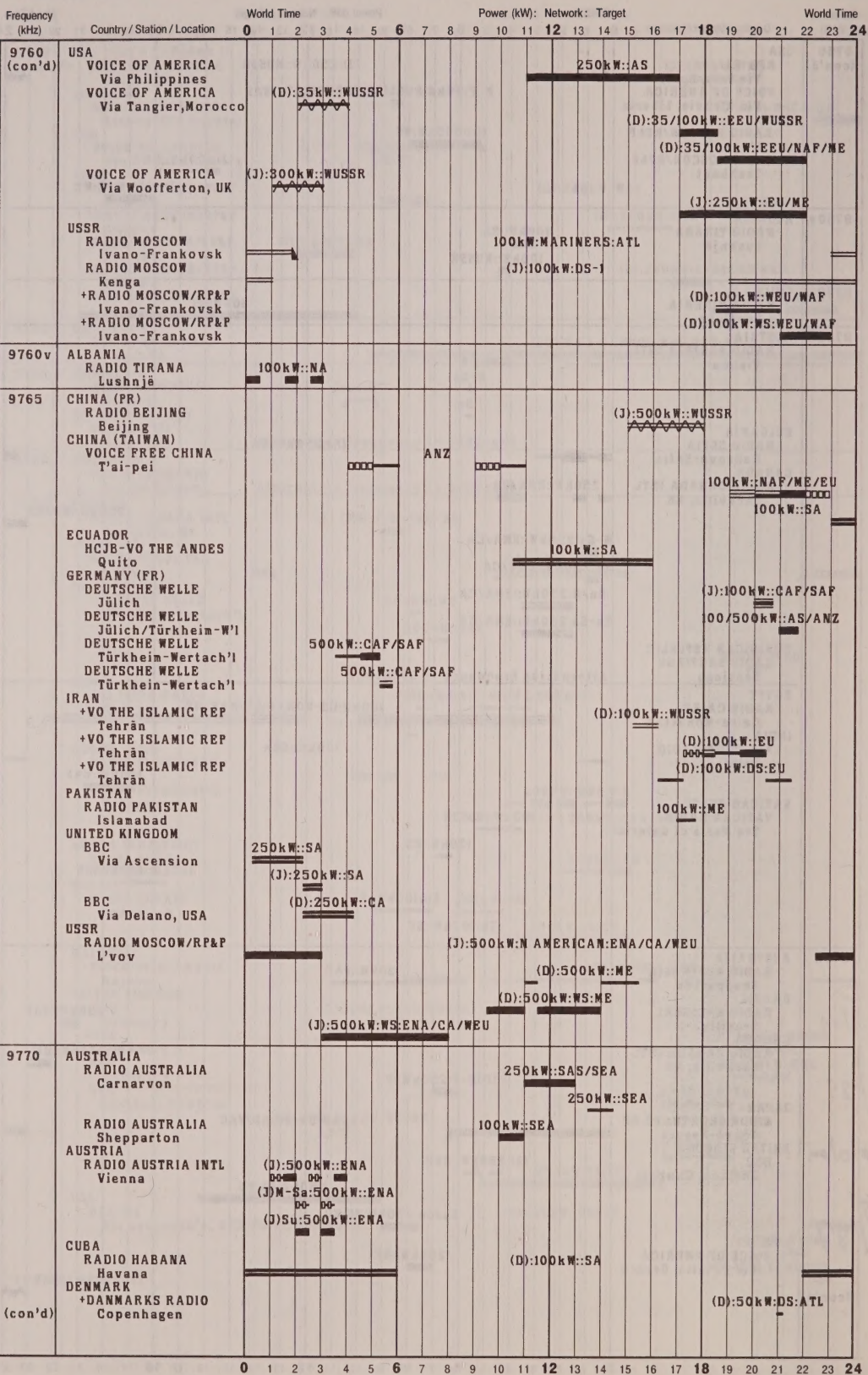


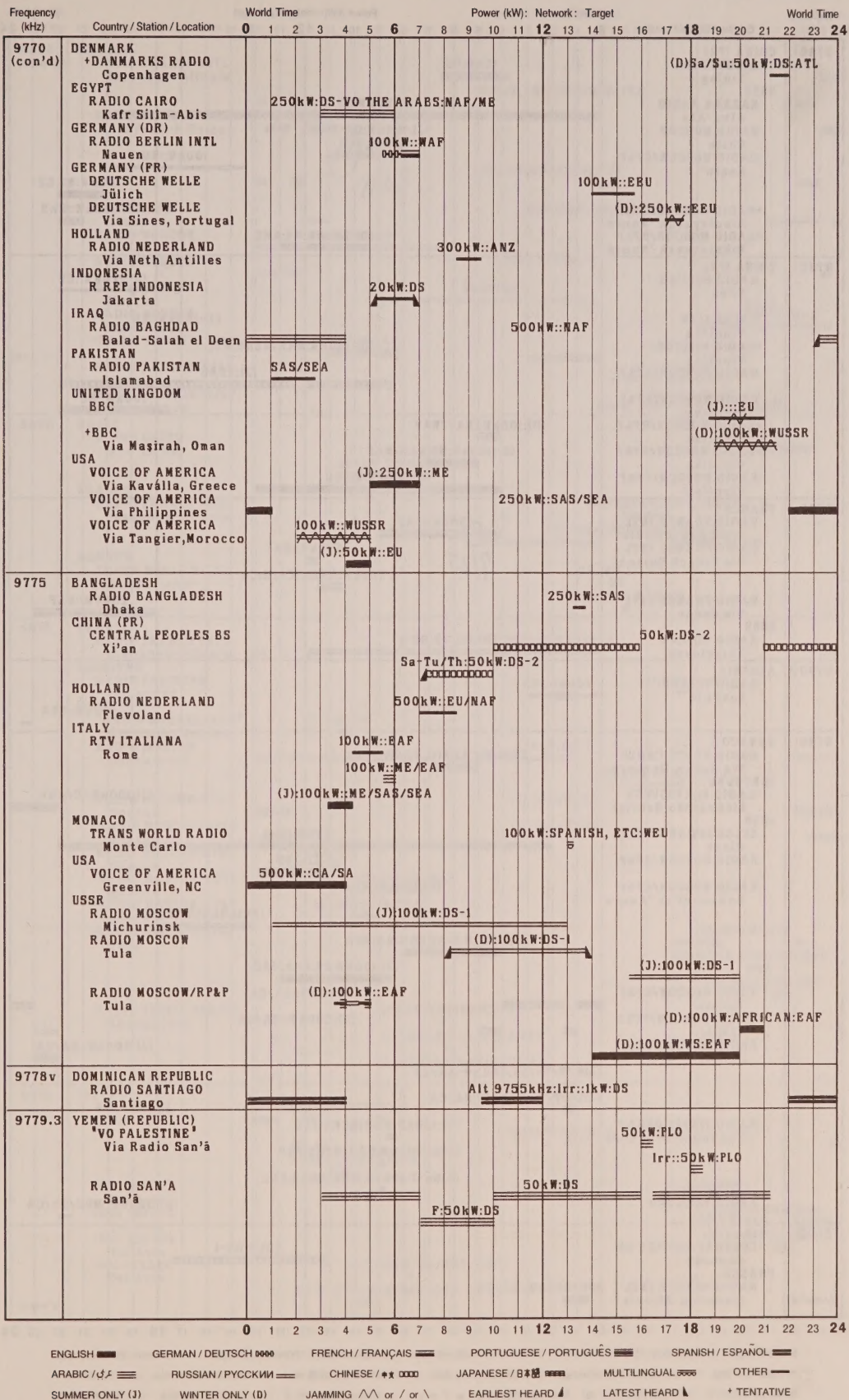
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD + TENTATIVE

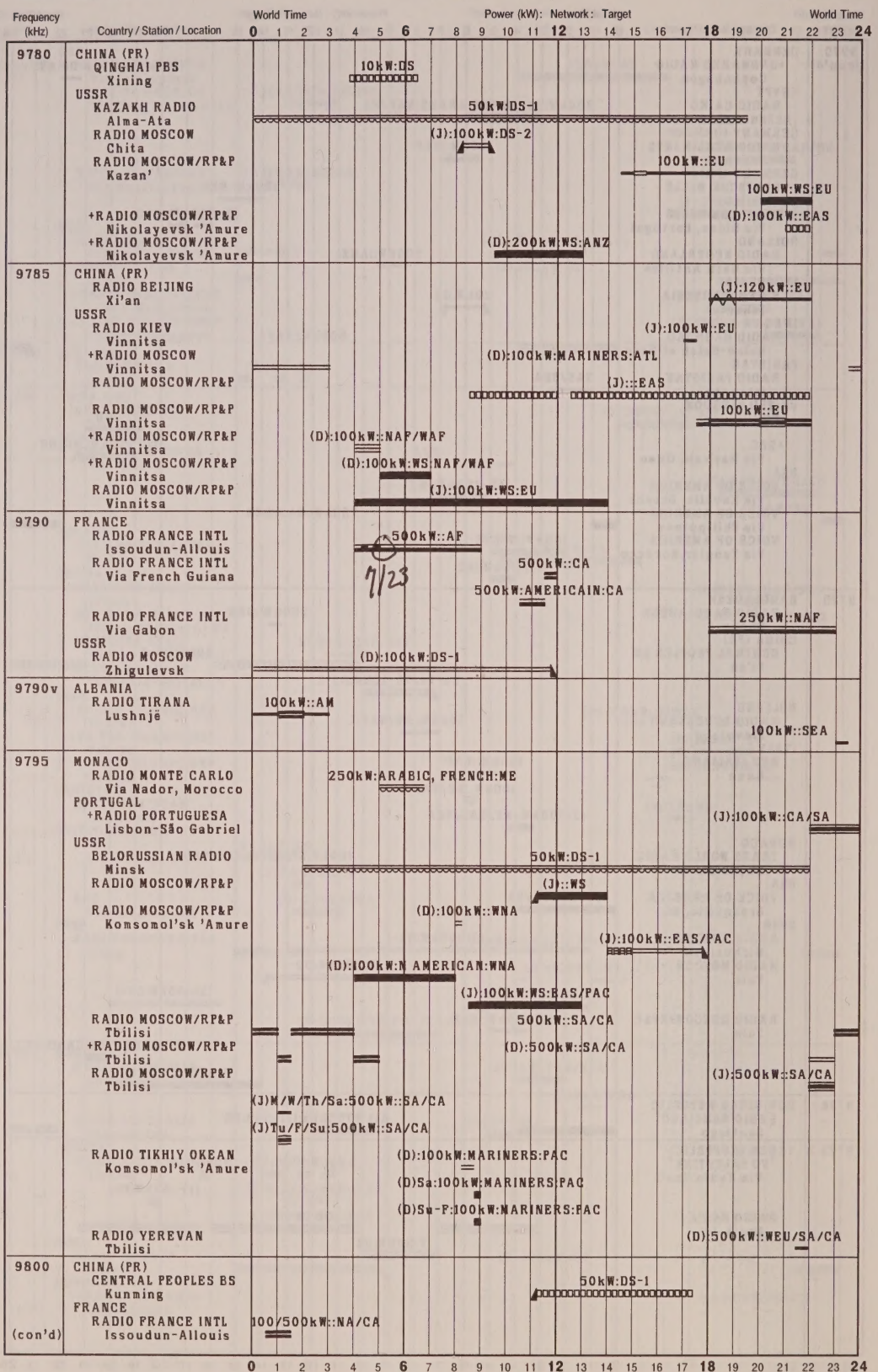
ENGLISH ■■■ GERMAN / DEUTSCH ■■■ FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
ARABIC / اَرَبِي ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 ■■■ JAPANESE / 日本語 ■■■ MULTILINGUAL ■■■ OTHER ■■■
SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



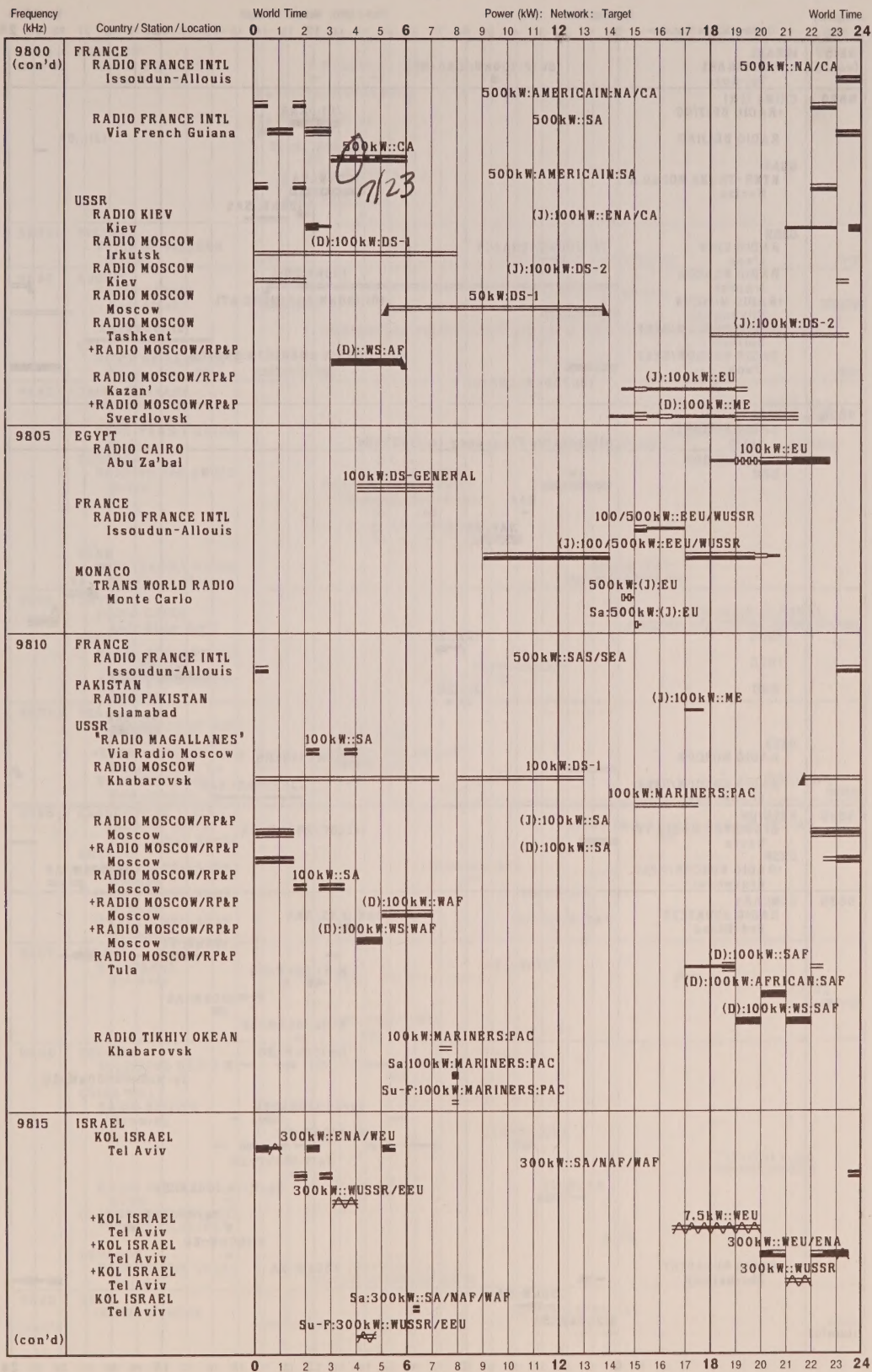
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD + TENTATIVE



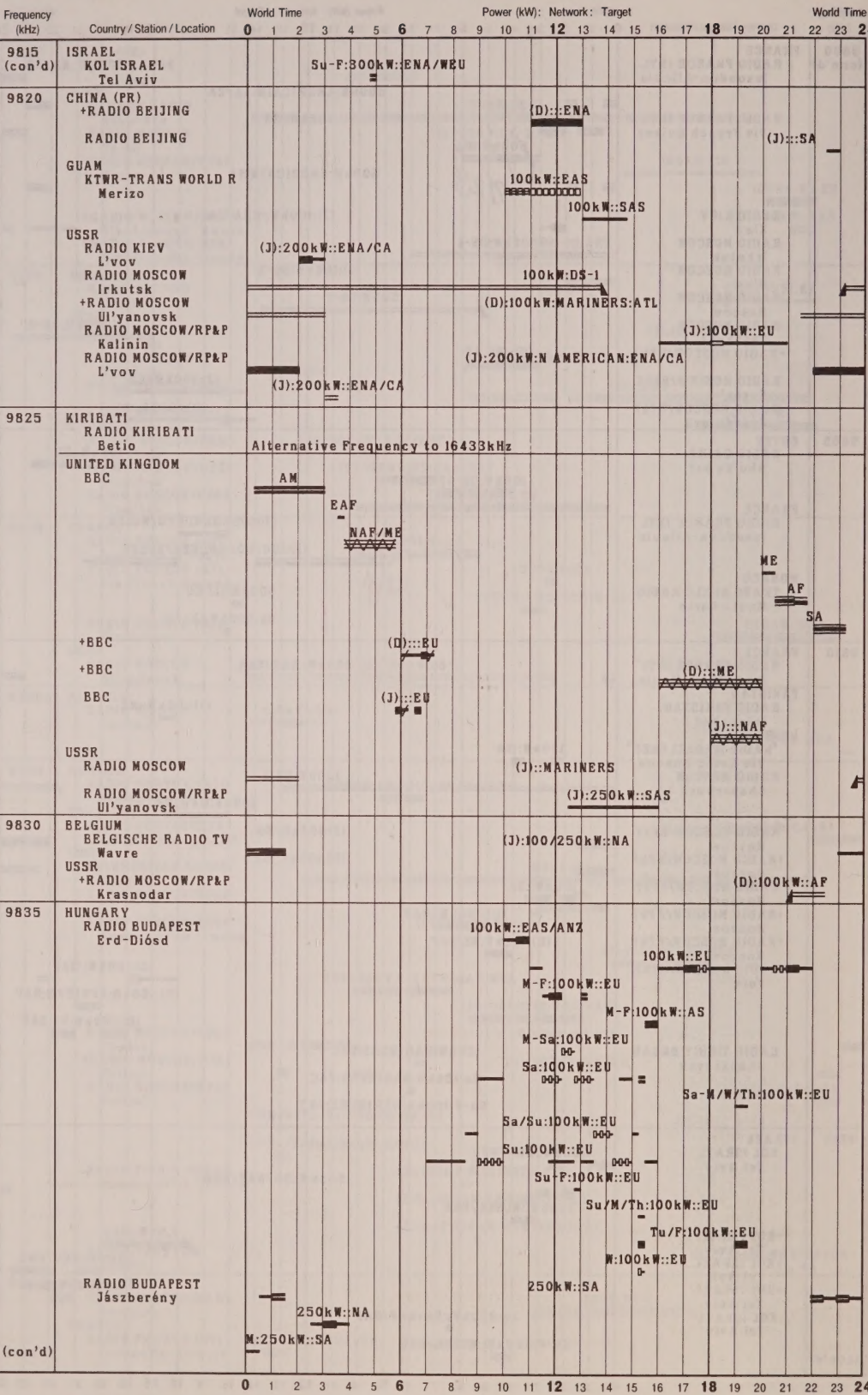


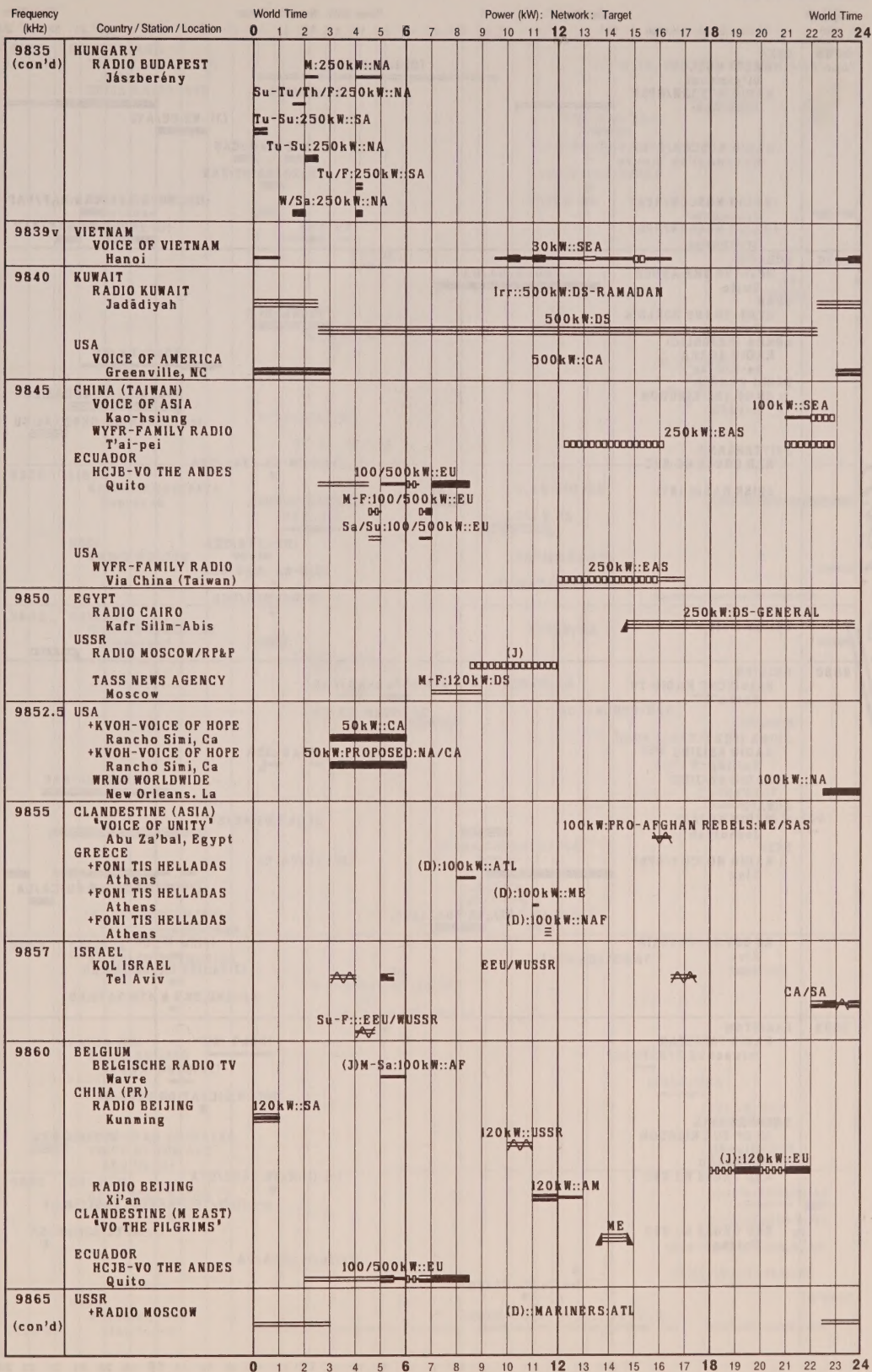


ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD + TENTATIVE





ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / اعراب — RUSSIAN / РУССКИЙ — CHINESE / 中 — JAPANESE / 日 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9865 (con'd)	USSR +RADIO MOSCOW Ul'yanovsk RADIO MOSCOW/RP&P Alma-Ata	<																								

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL

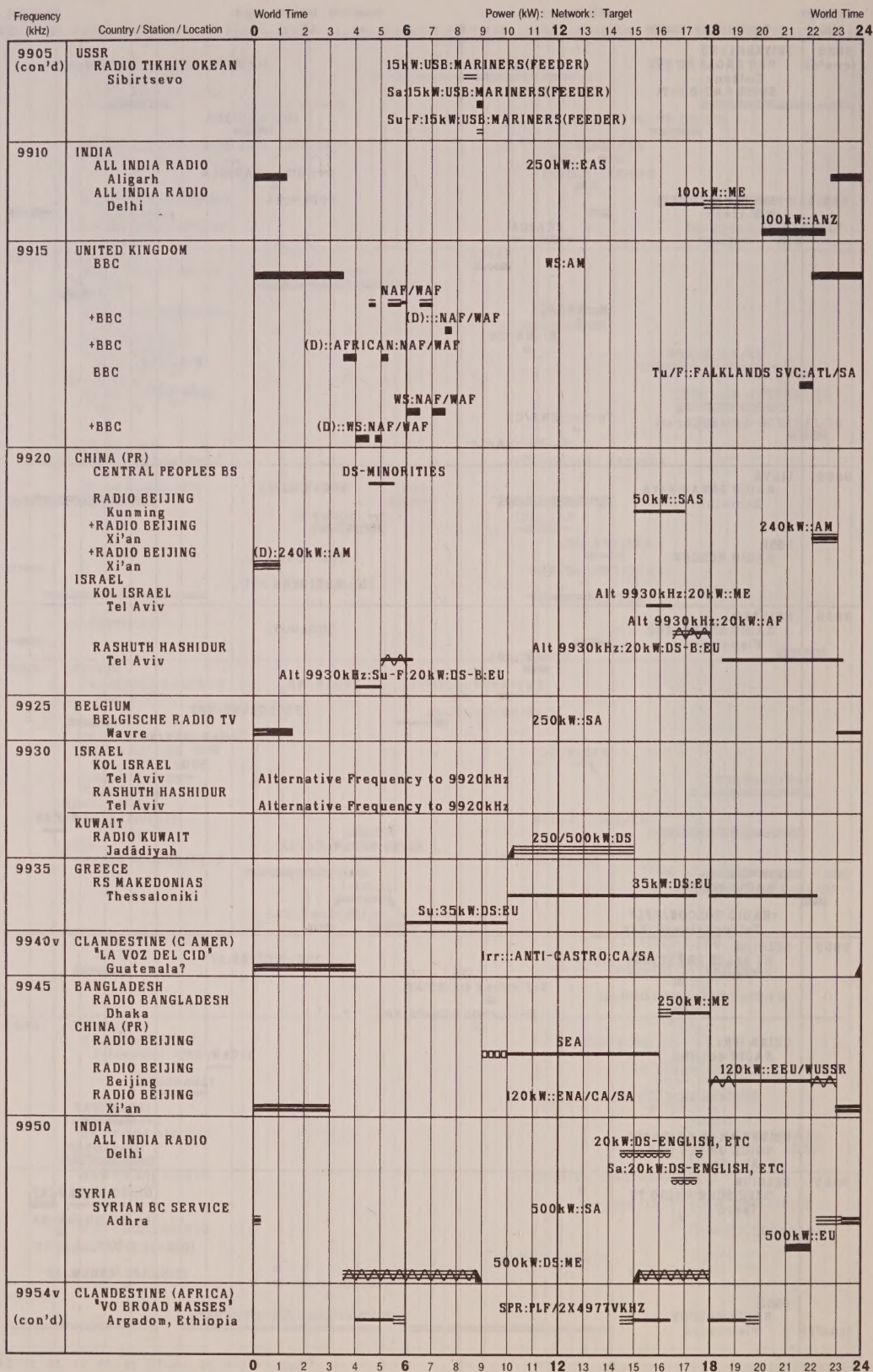
ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER

SUMMER ONLY (J) WINTER ONLY (D) JAMMING / or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE

ENGLISH  GERMAN / DEUTSCH  FRENCH / FRANÇAIS  PORTUGUESE / PORTUGUÊS  SPANISH / ESPAÑOL 

ARABIC /  RUSSIAN / РУССКИЙ  CHINESE / 中文  JAPANESE / 日本語  MULTILINGUAL  OTHER 

SUMMER ONLY (J) WINTER ONLY (D) JAMMING  or / or \ EARLIEST HEARD  LATEST HEARD  + TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD * TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9954v (con'd)	CLANDESTINE (AFRICA) 'VO THE TIGRE REV' Argadom, Ethiopia																									
9955	CHINA (TAIWAN) VOICE FREE CHINA T'ai-pei USA WYFR-FAMILY RADIO Via China (Taiwan)																									
9957	ICELAND RIKISUTVARPID Reykjavik																									
9960	CLANDESTINE (C AMER) 'RADIO CAIMAN' KOREA (DPR) RADIO PYONGYANG																									
9965	CHINA (PR) RADIO BEIJING Beijing																									
9977	KOREA (DPR) RADIO PYONGYANG																									
9980	USSR ARMENIAN RADIO Yerevan RADIO YEREVAN Yerevan																									
9985	CHINA (PR) RADIO BEIJING																									
9988	PERU ESTACION 2000 Rioja																									

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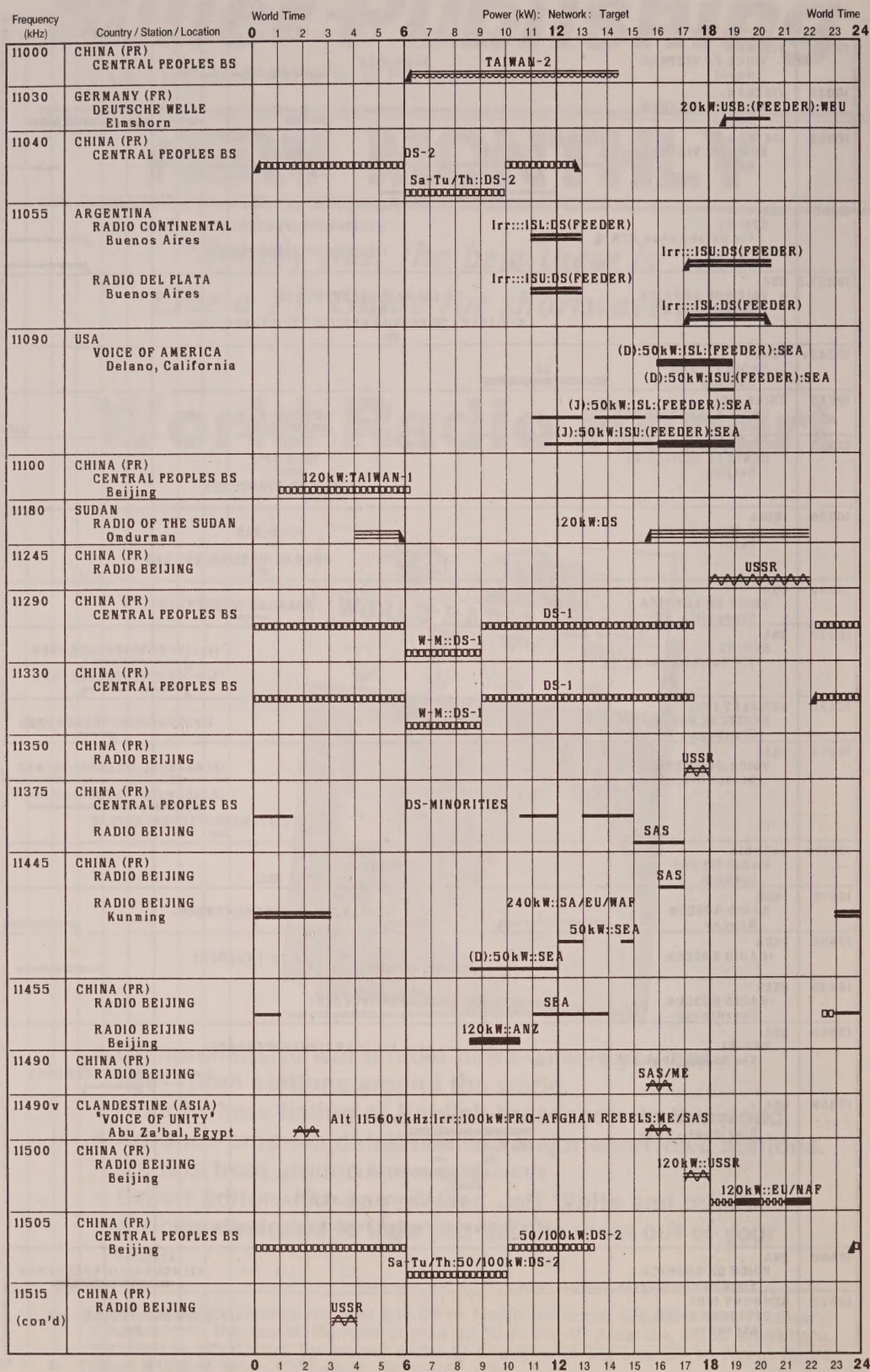
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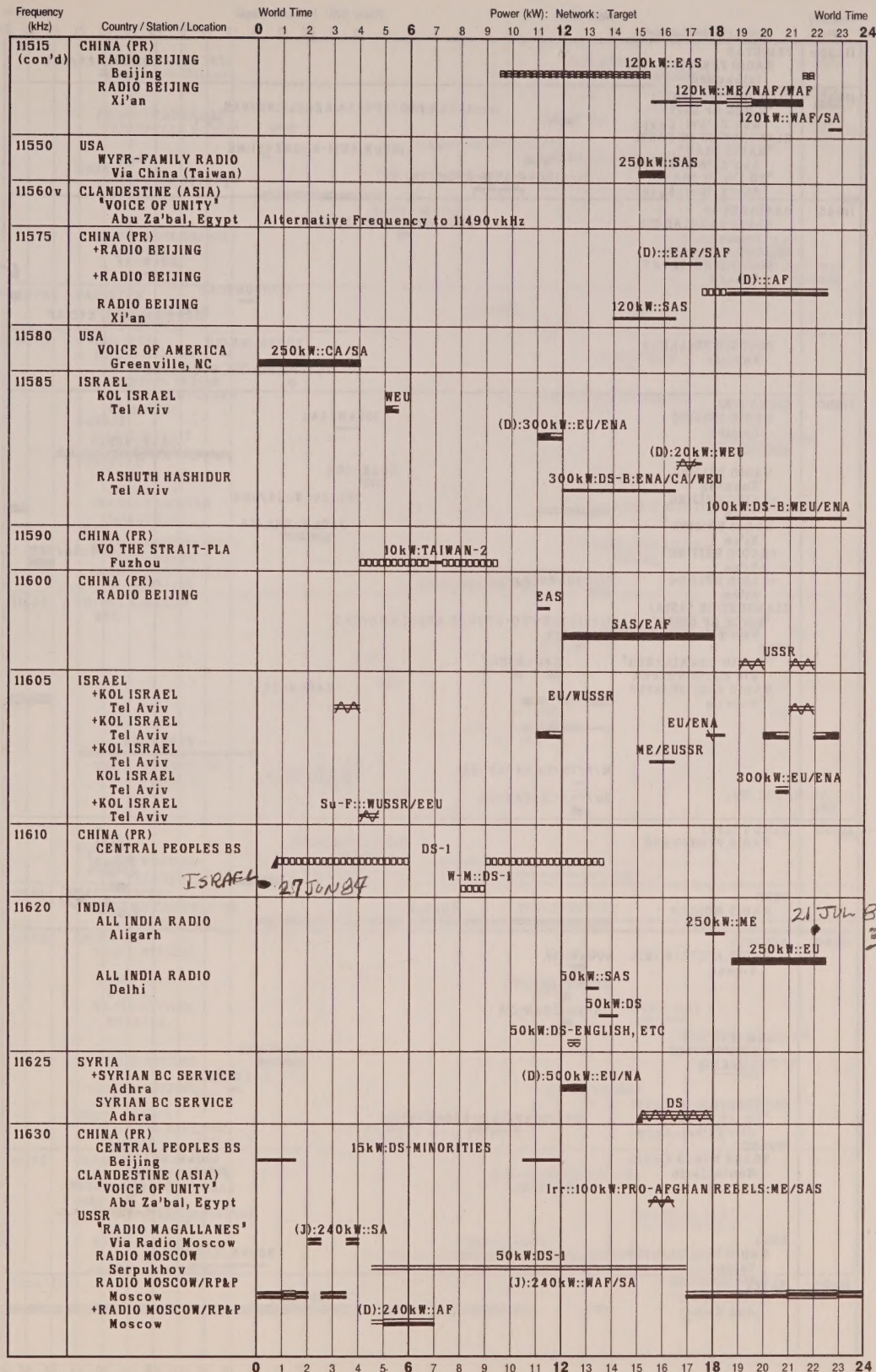
We bring you your world

Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10010	VIETNAM VOICE OF VIETNAM Hanoi																									
10040	VIETNAM VOICE OF VIETNAM Hanoi																									
10059	VIETNAM VOICE OF VIETNAM Hanoi																									
10190	USA RFE-RL Via Holzkirchen,GFR																									
10237.5	USA VOICE OF AMERICA Greenville, NC																									
10242v	PERU RADIO FUTURO Calzada																									
10245	CHINA (PR) CENTRAL PEOPLES BS Beijing																									
10260	CHINA (PR) CENTRAL PEOPLES BS Beijing																									
10335	INDIA ALL INDIA RADIO Delhi																									
10380	USA VOICE OF AMERICA Greenville, NC																									
10420	USA RFE-RL Via Holzkirchen,GFR																									
10440	GERMANY (FR) DEUTSCHE WELLE Elmshorn																									
10454	USA VOICE OF AMERICA Greenville, NC																									
10510v	ALBANIA RADIO TIRANA Lushnjë																									
10670	USSR RADIO MOSCOW Moscow																									
10690	USSR +RADIO MOSCOW																									
10855	USSR +RADIO MOSCOW Sverdlovsk																									
10860	USA RFE-RL Via Holzkirchen,GFR																									
10869	USA VOICE OF AMERICA Cincinnati, Ohio																									
10880	USA VOICE OF AMERICA Via M'rovia, Liberia																									
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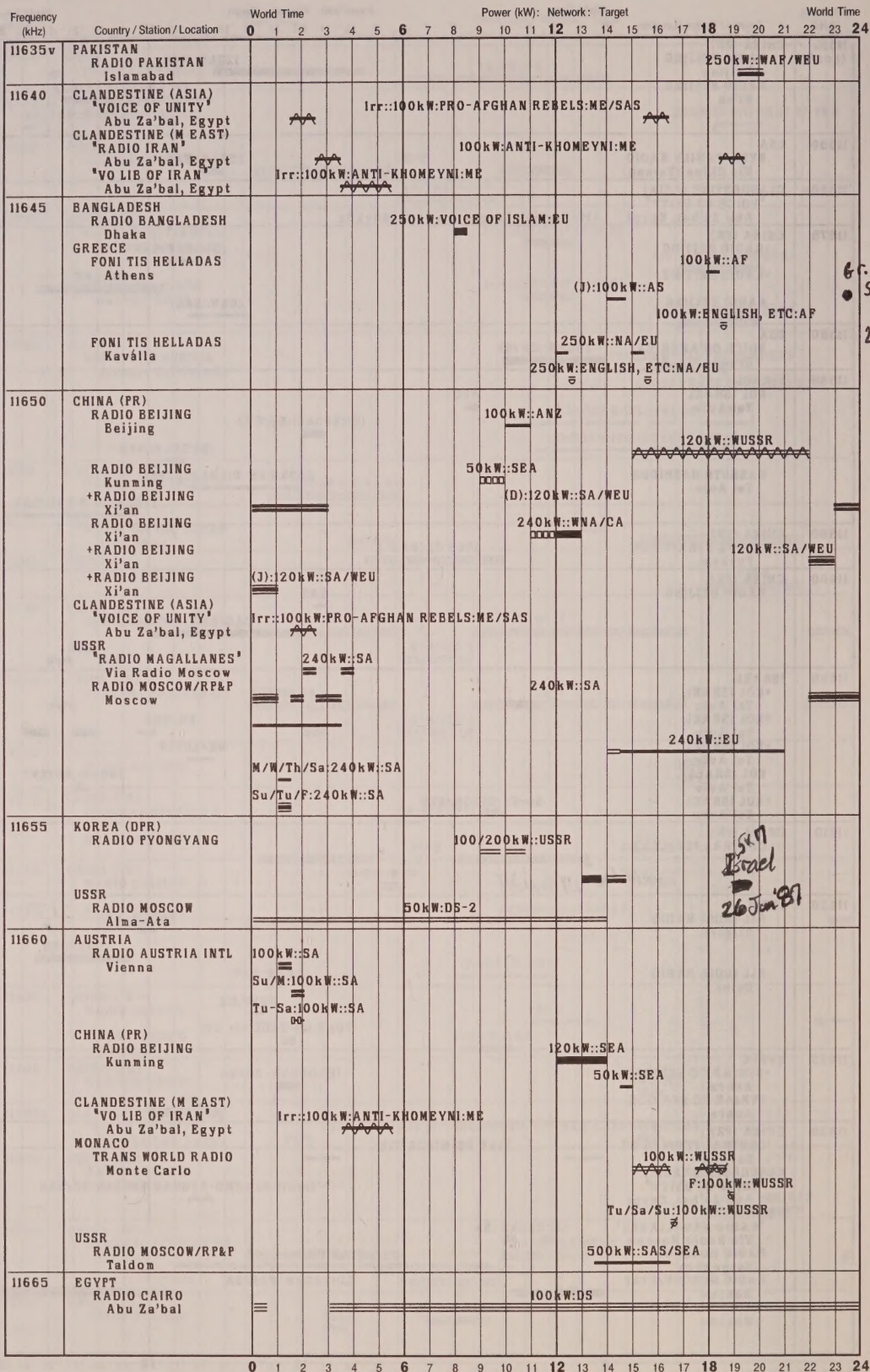
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE



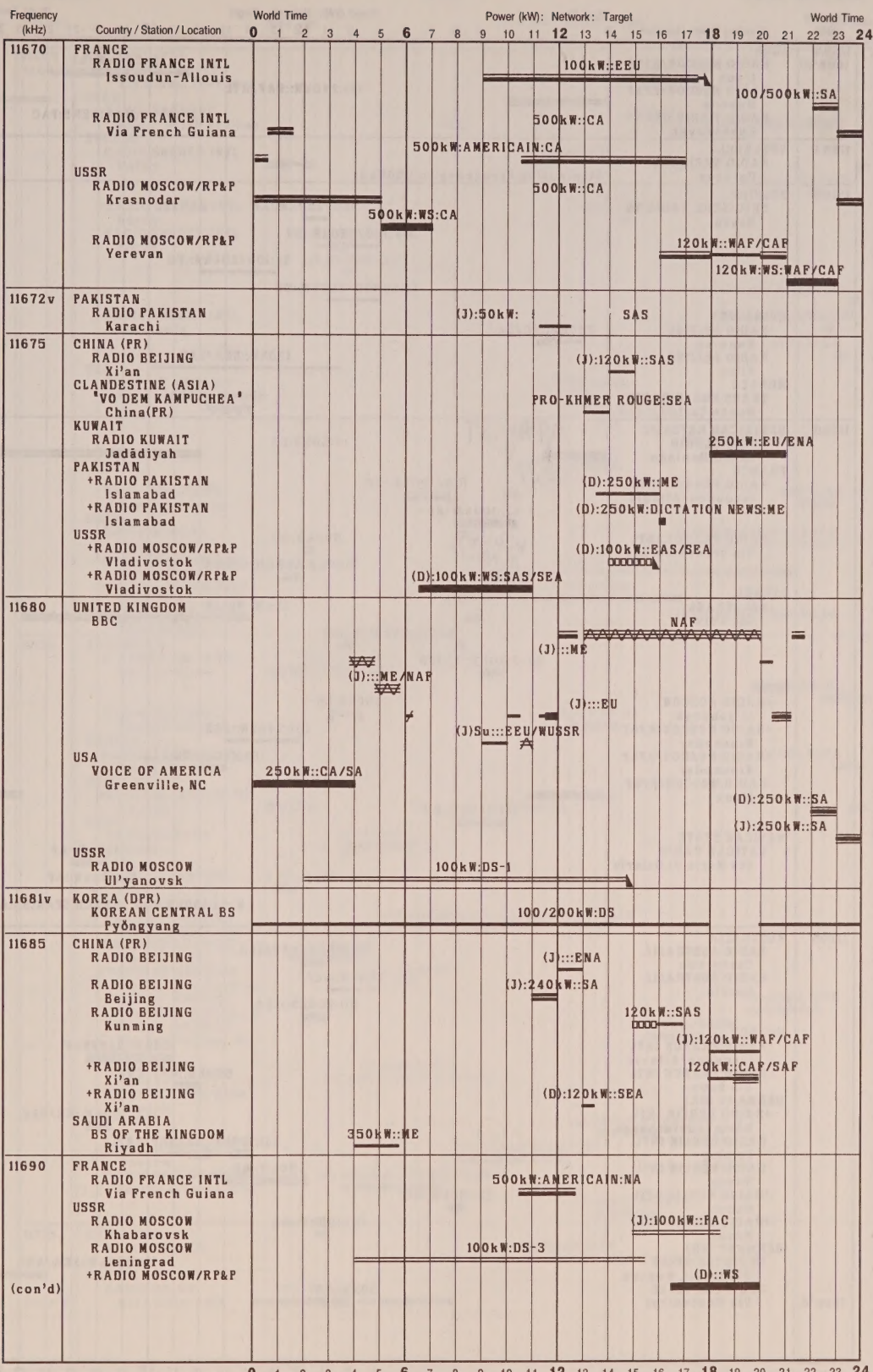


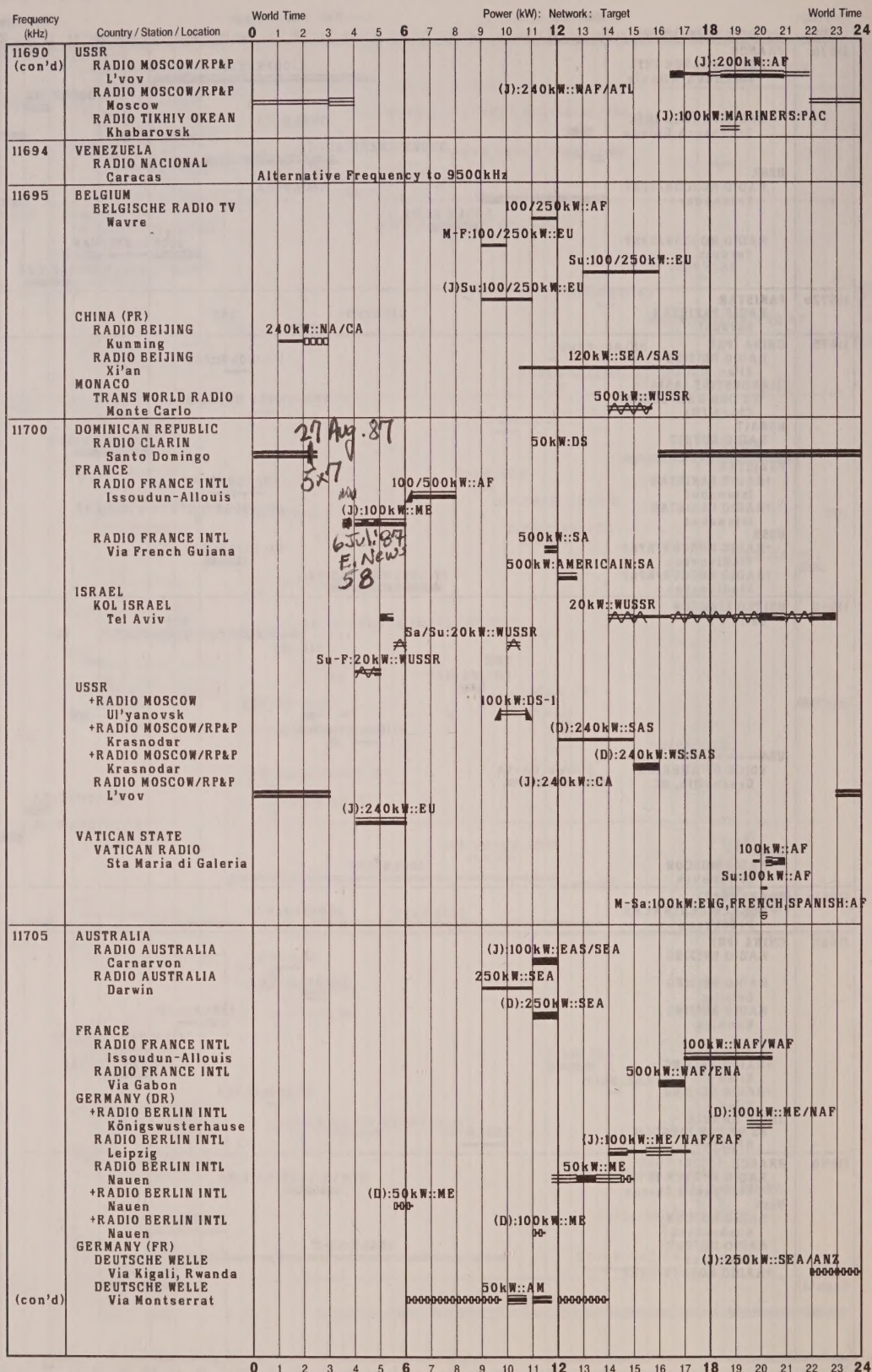
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD * TENTATIVE



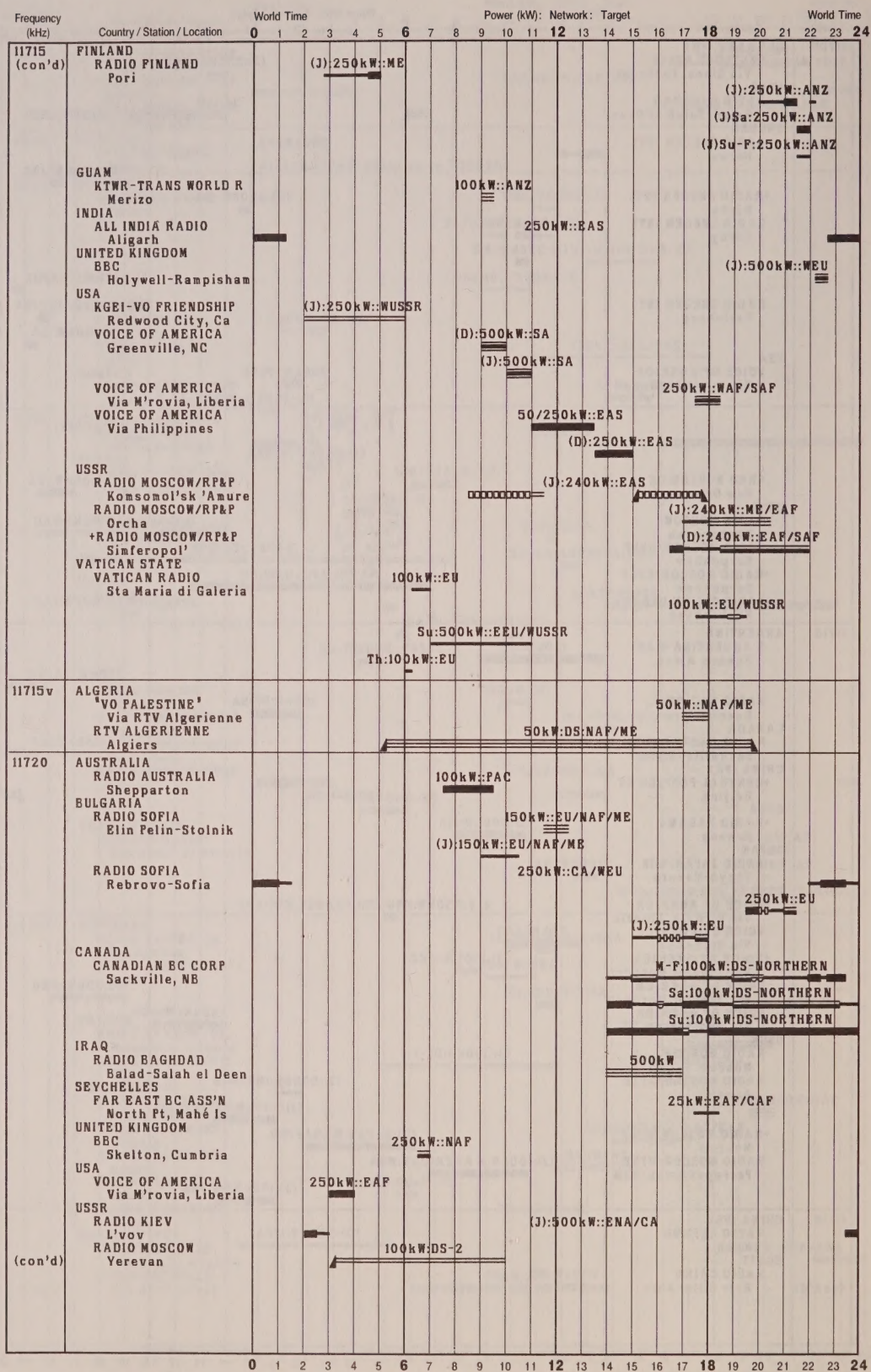
6r.
5/07
235
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5/17
Israel
26 Jun '87

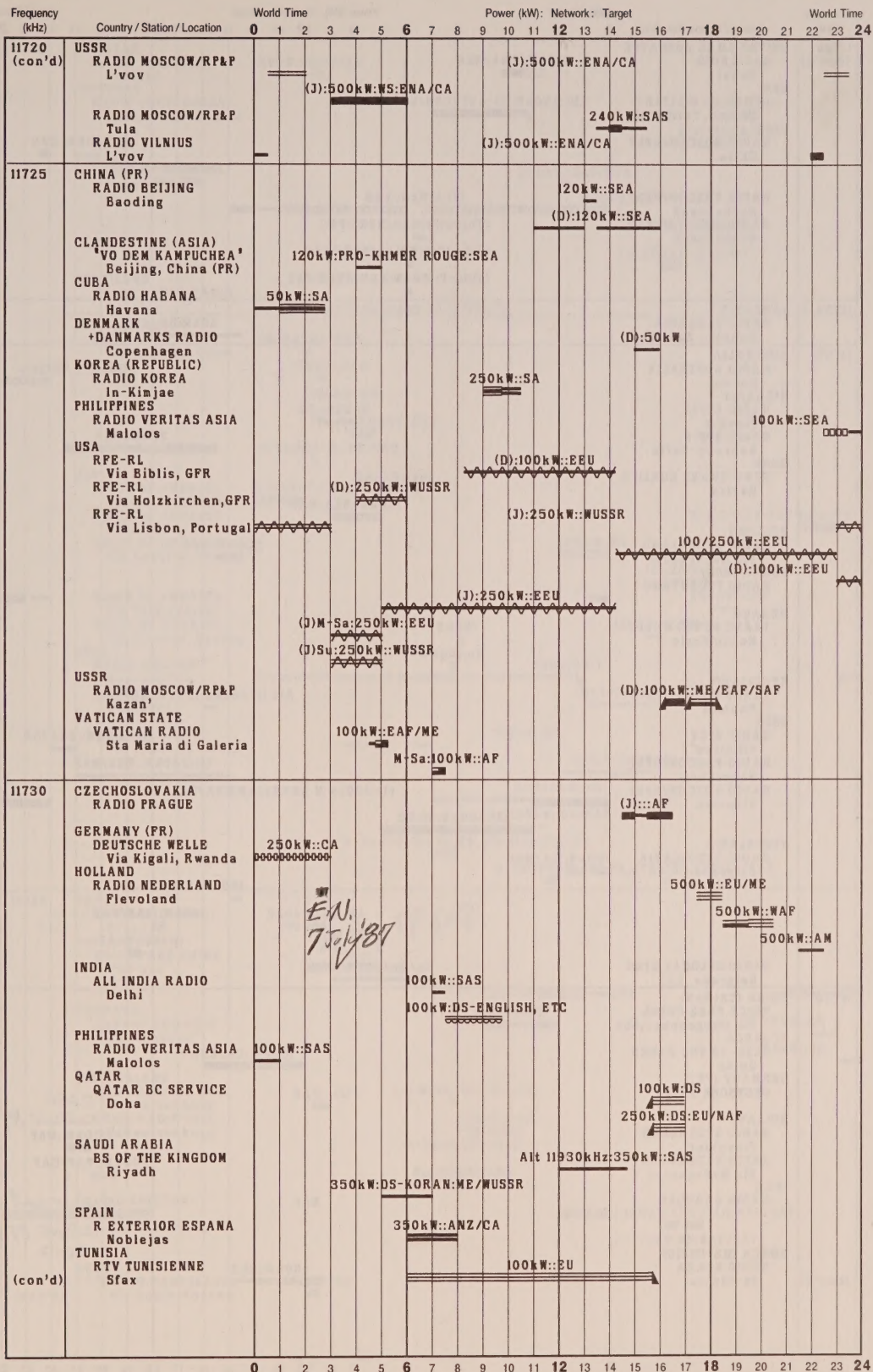




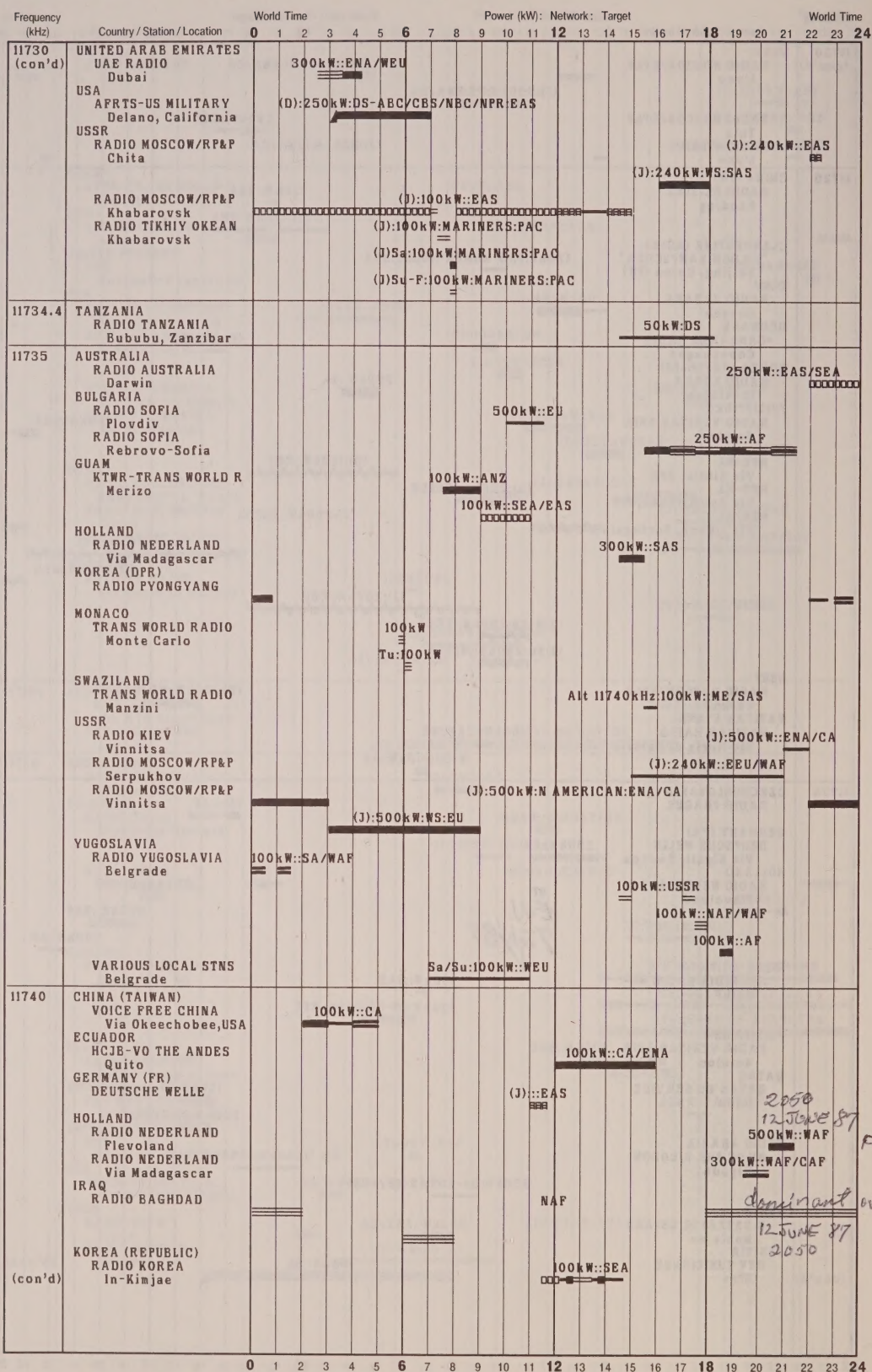
ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
ARABIC / اَرَبِيّ	RUSSIAN / РУССКИЙ	CHINESE / 中文	JAPANESE / 日本語	MULTILINGUAL
SUMMER ONLY (1)	WINTER ONLY (1)	JAMMING / 合	EARLIEST HEARD	LATEST HEARD
				+ TENTATIVE



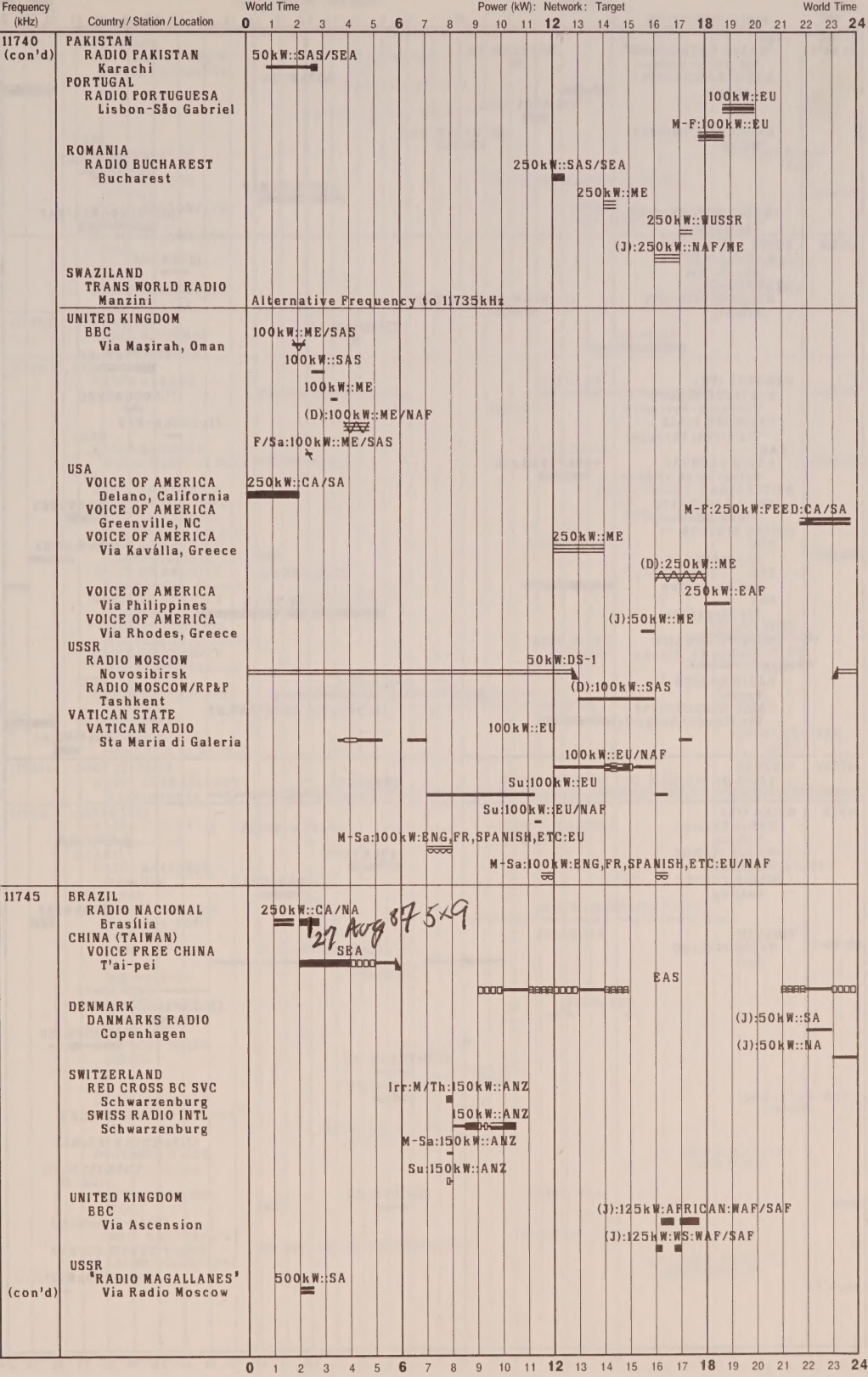
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE

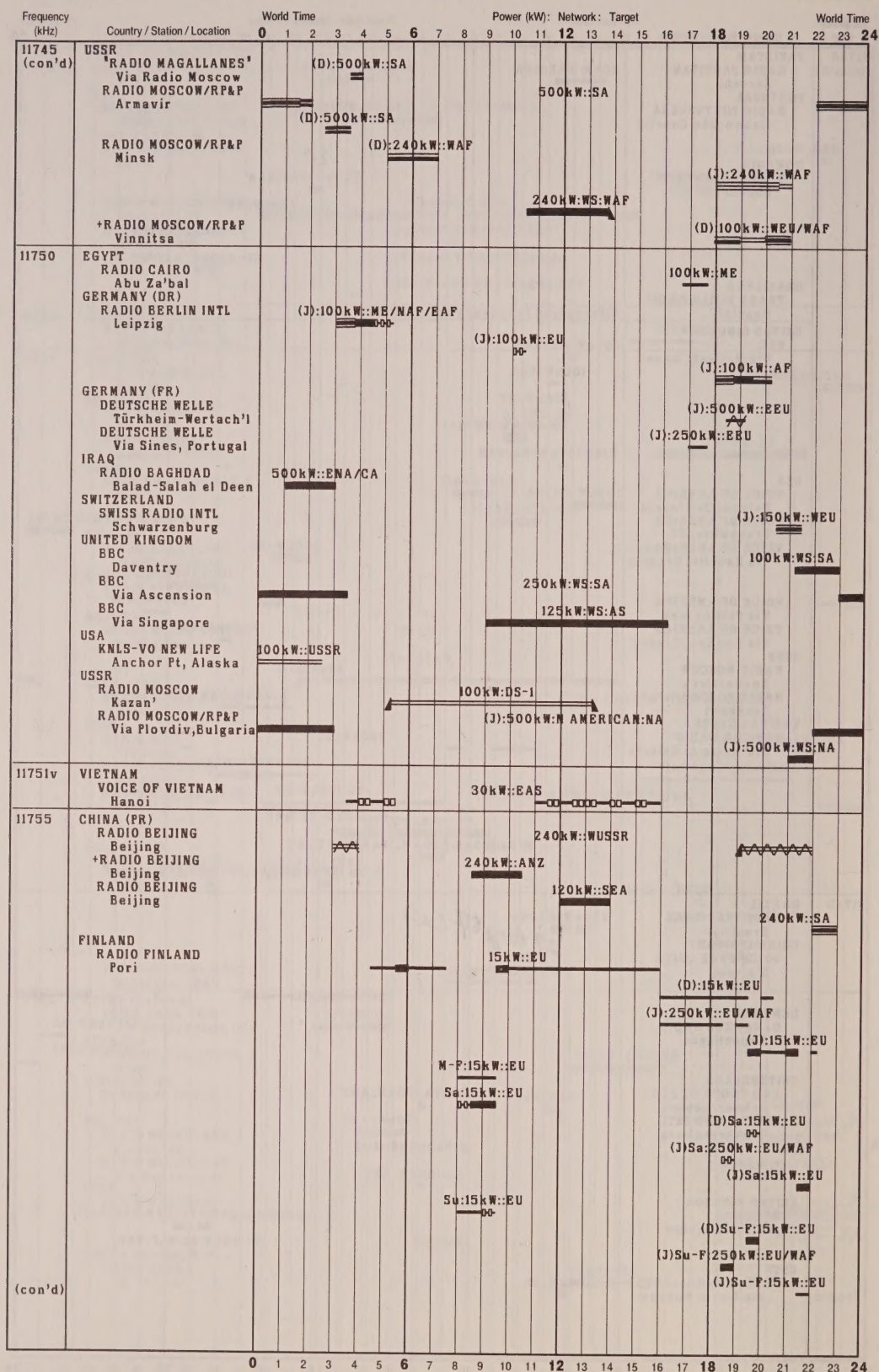


ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / \ EARLIEST HEARD LATEST HEARD * TENTATIVE

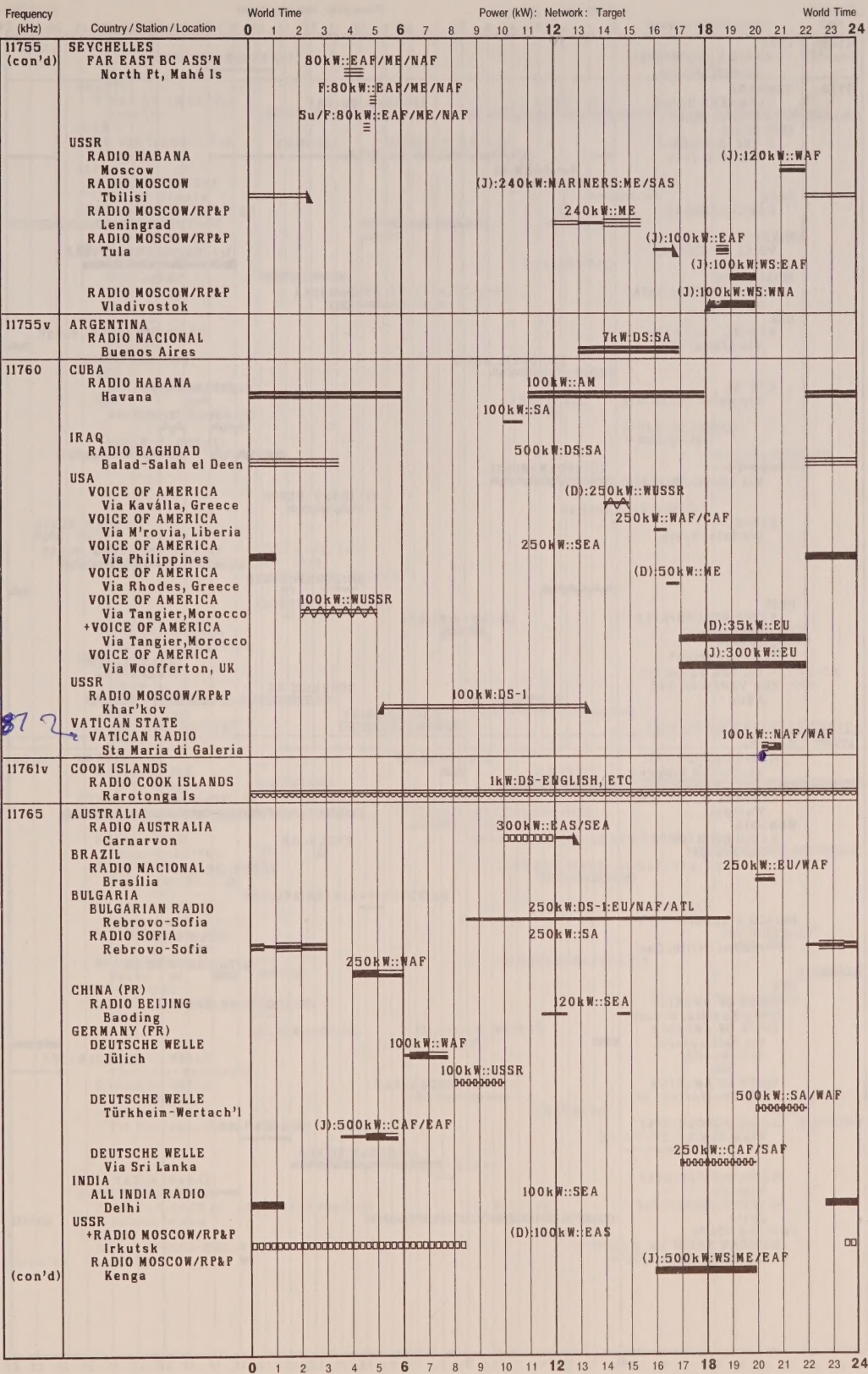


ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
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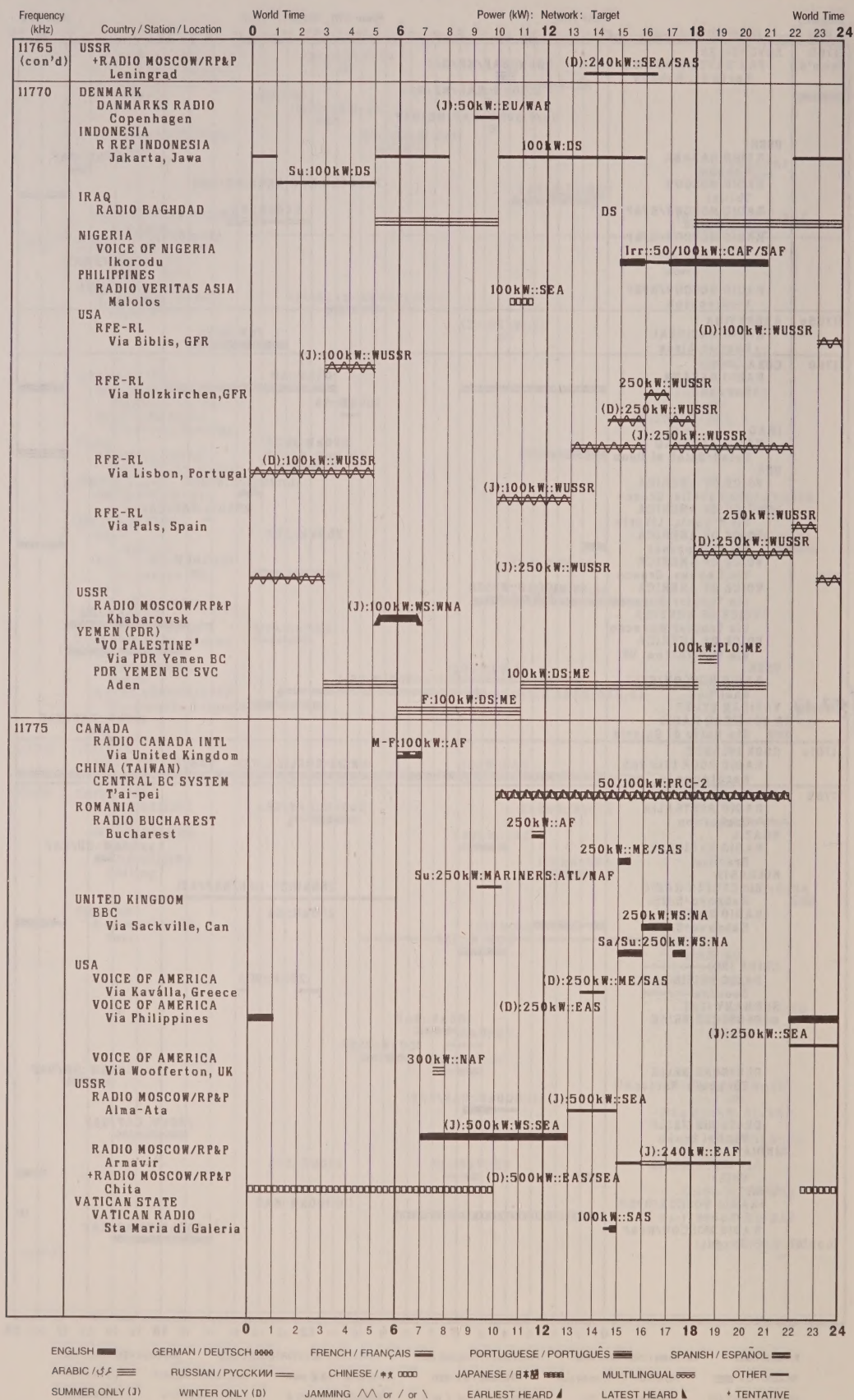


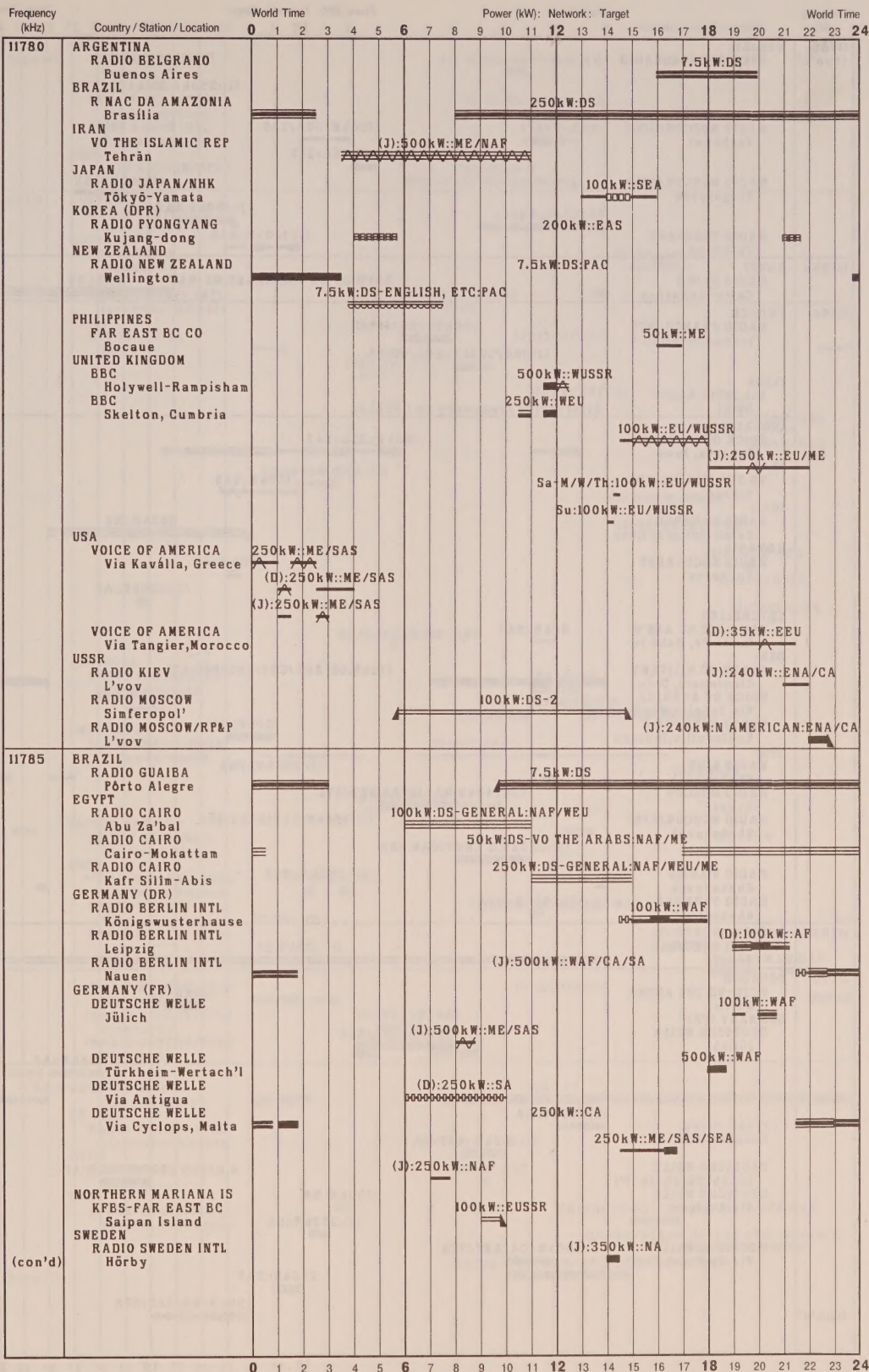


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 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE



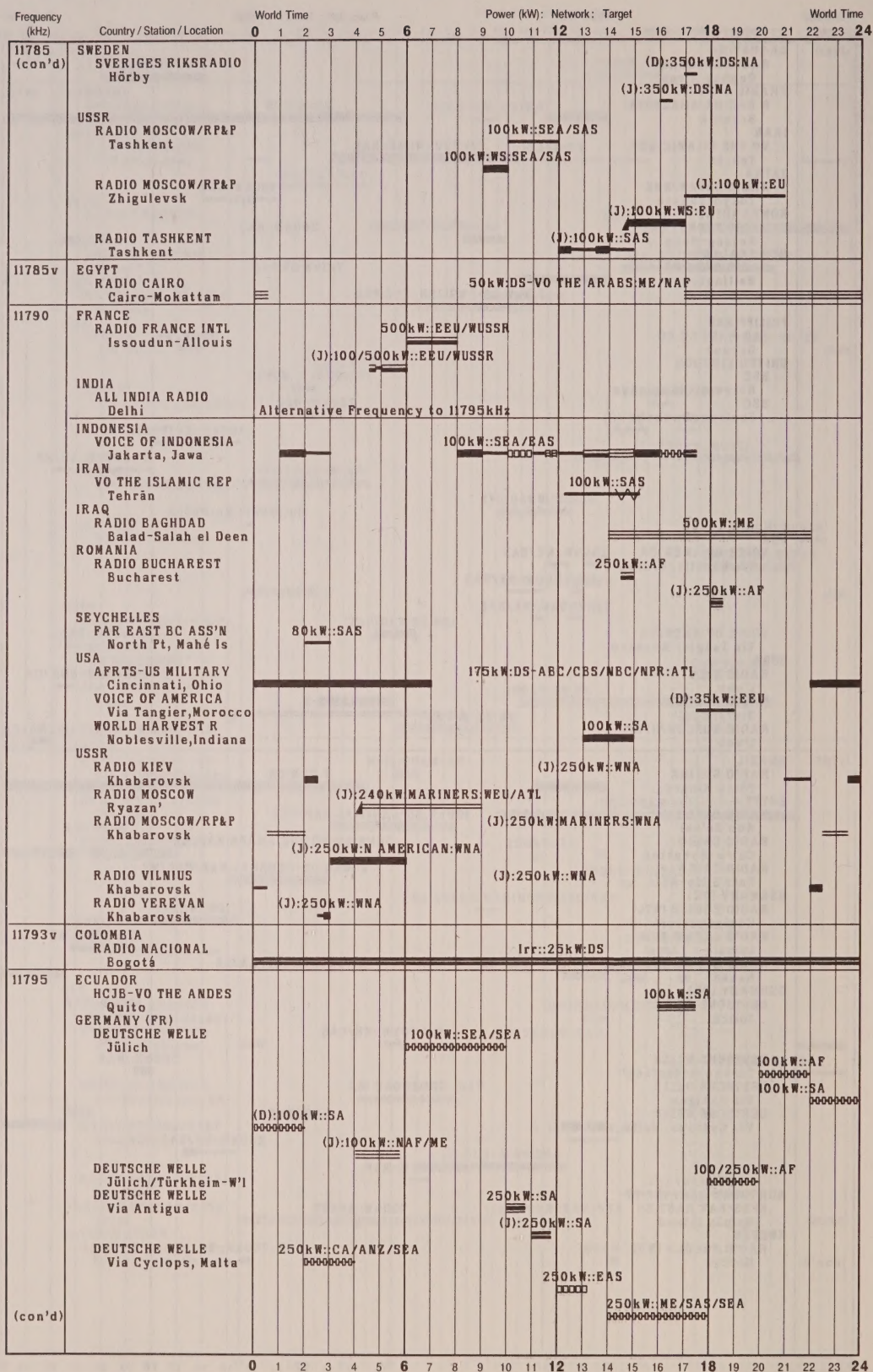
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 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE





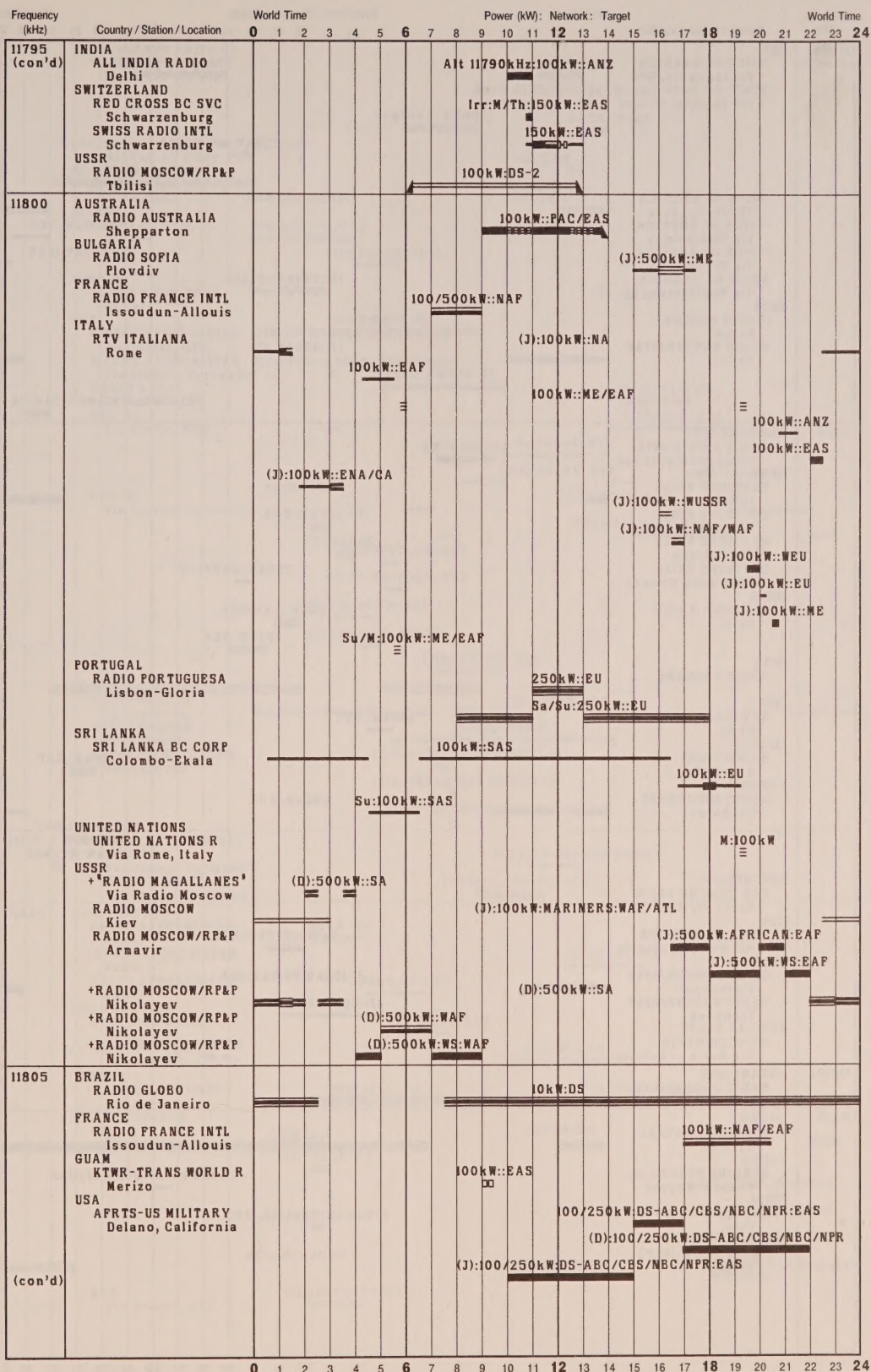
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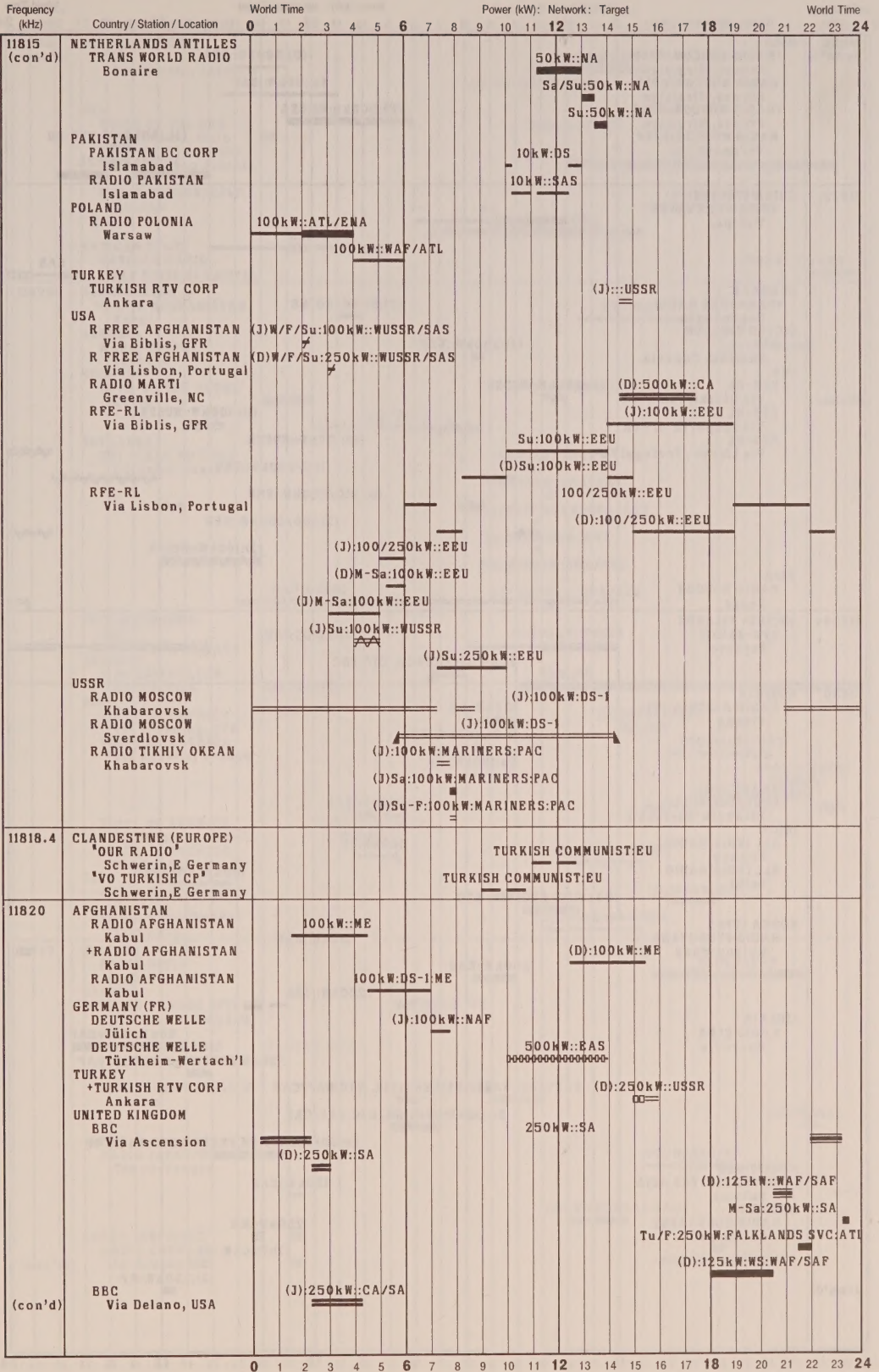


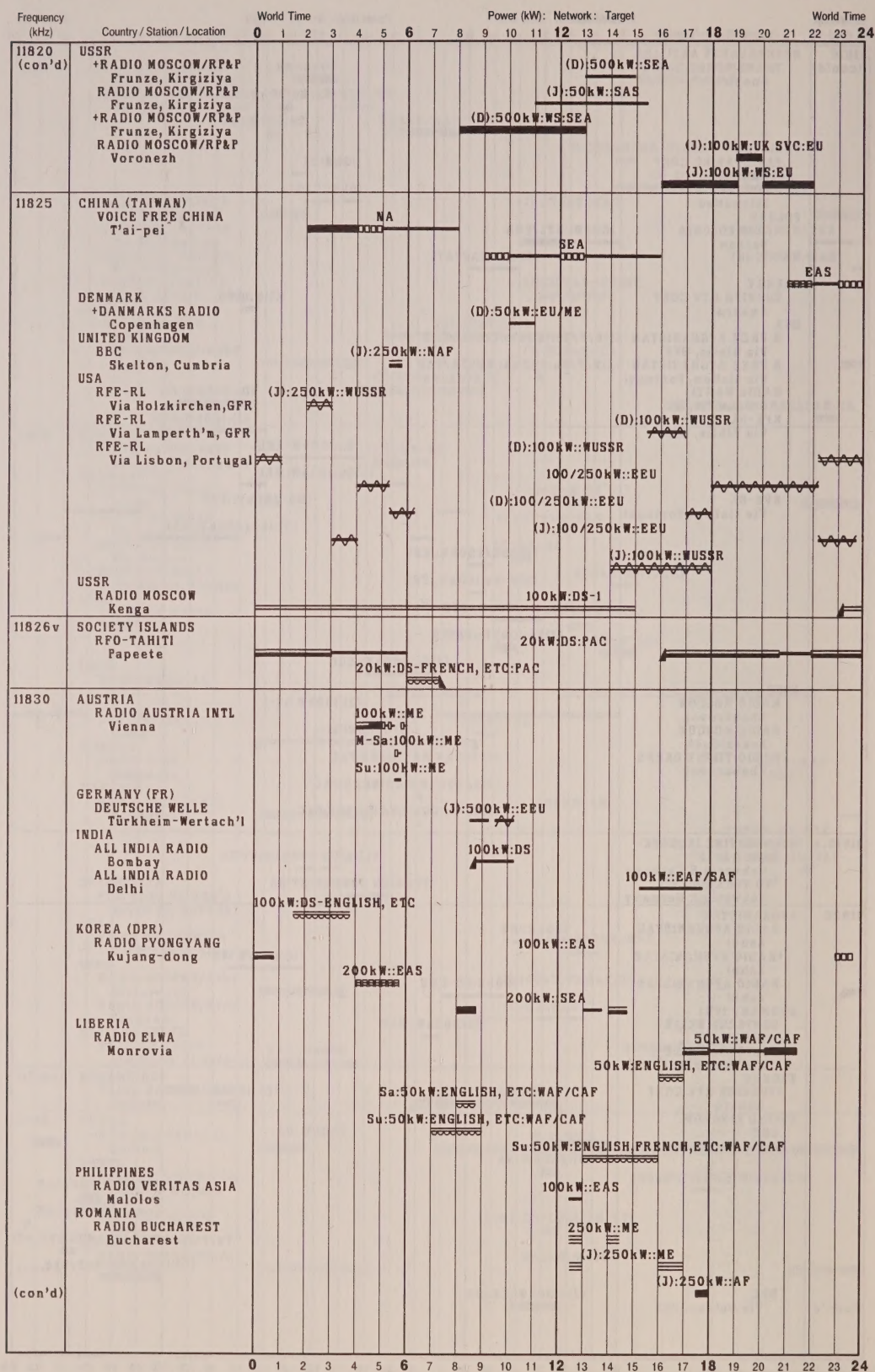
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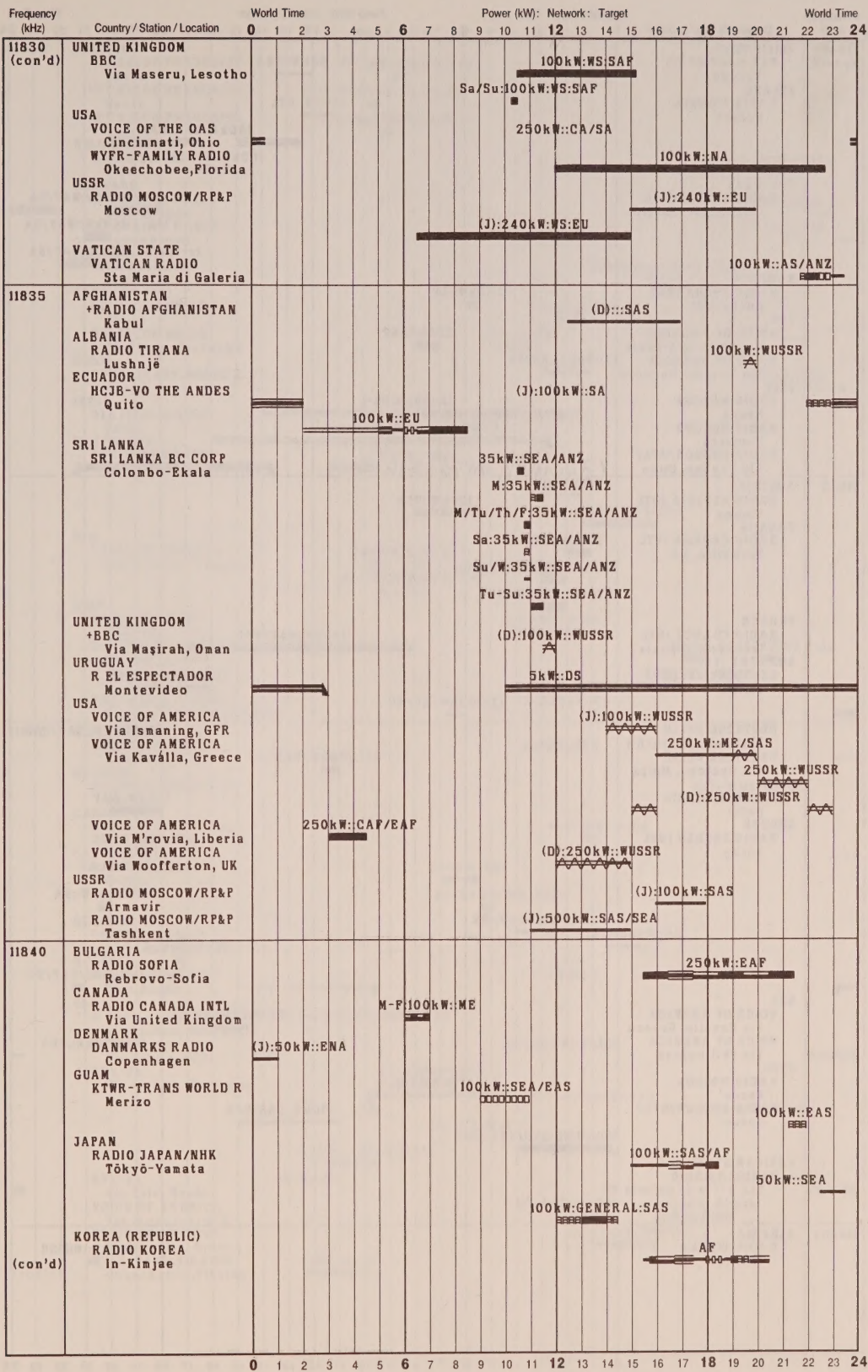
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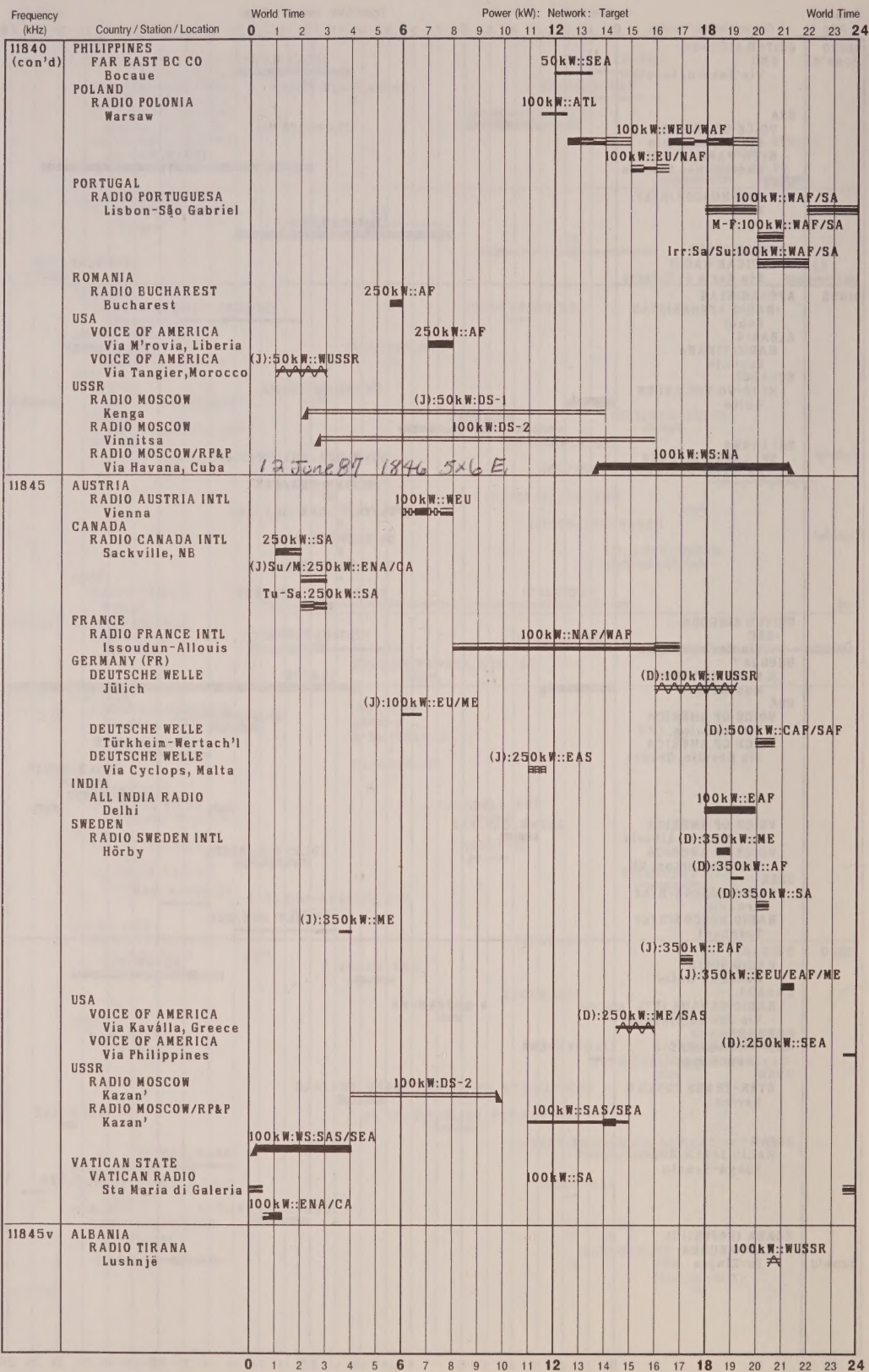


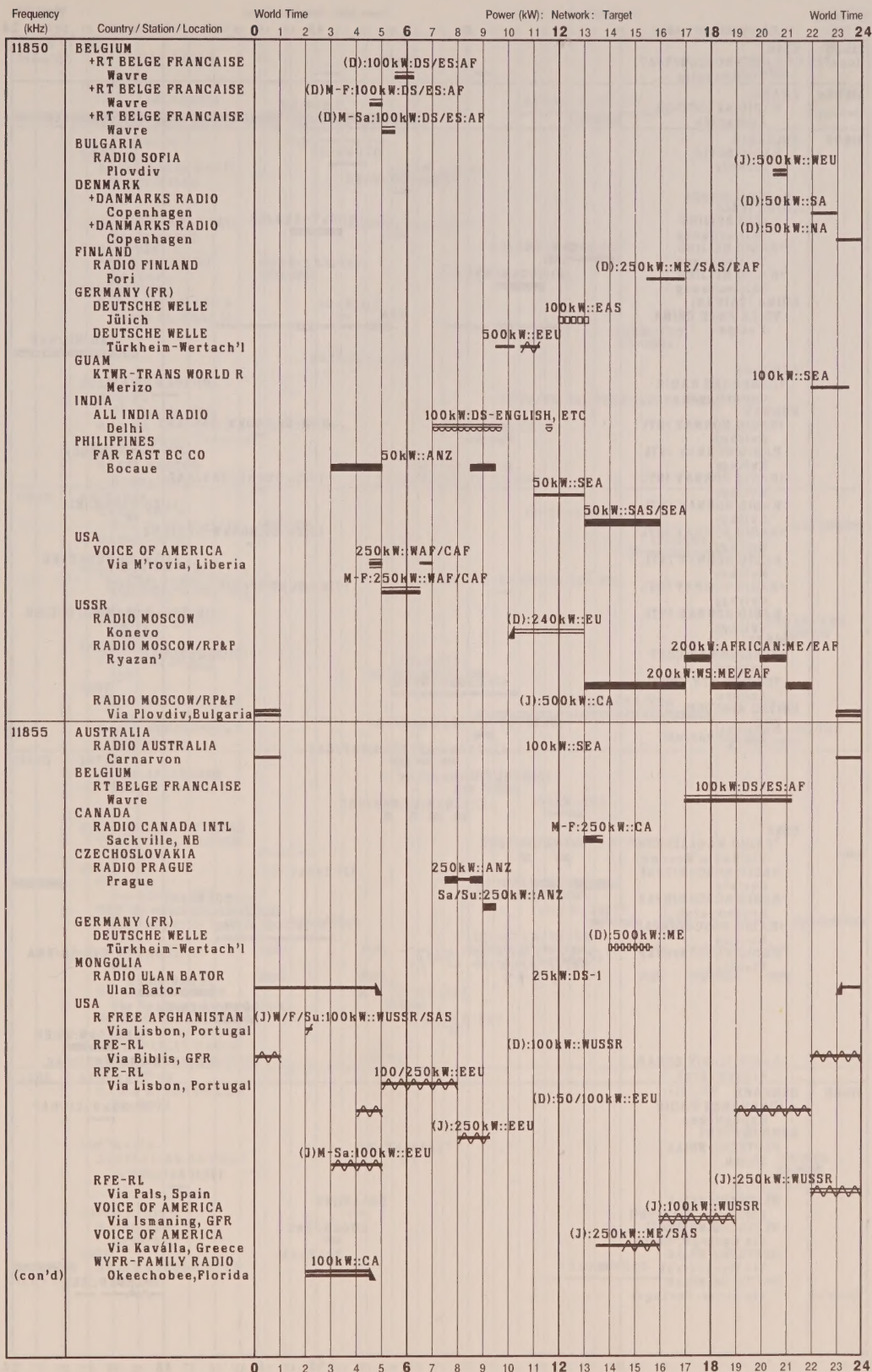
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ARABIC /	RUSSIAN / РУССКИЙ	CHINESE / 中文	JAPANESE / 日本語	MULTILINGUAL	OTHER
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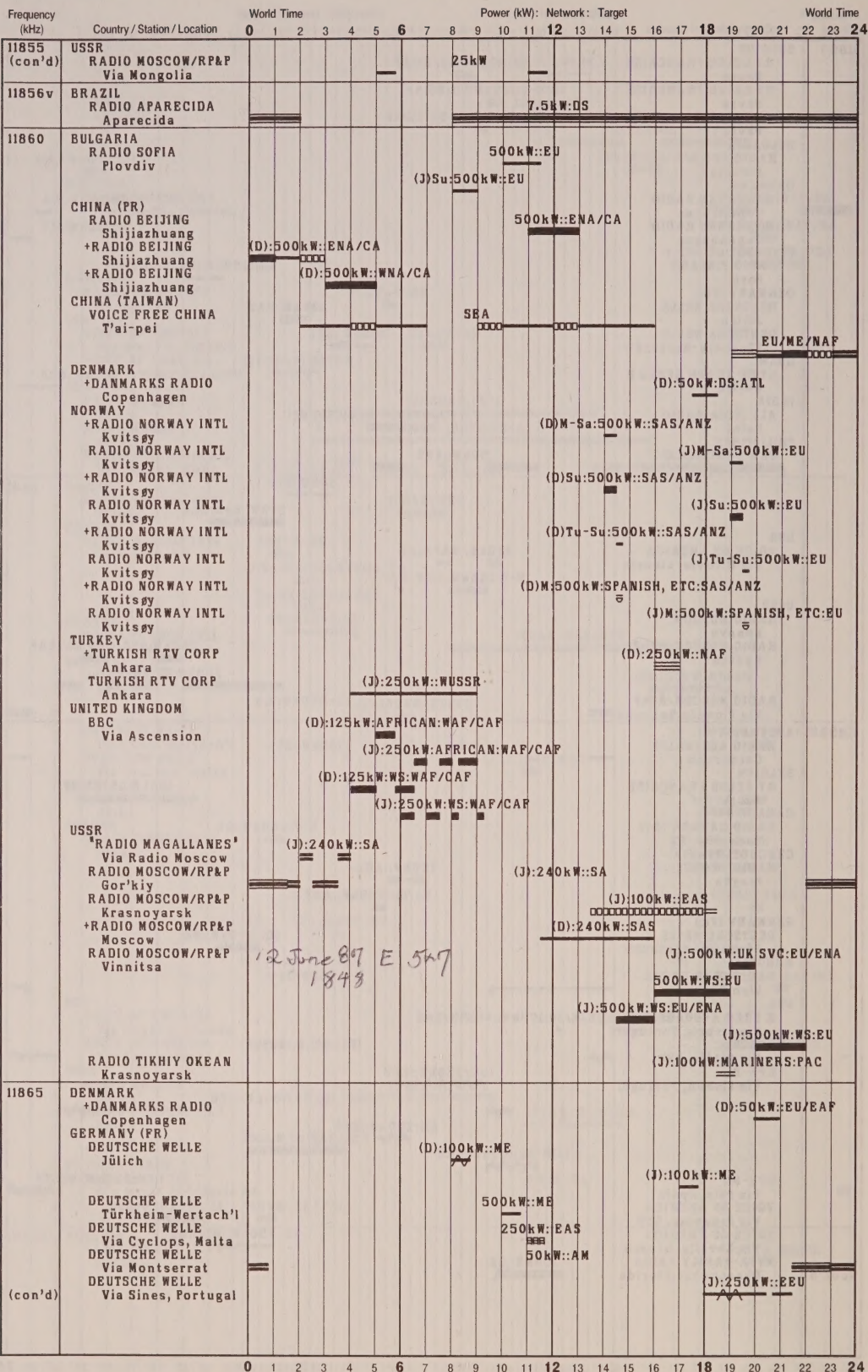


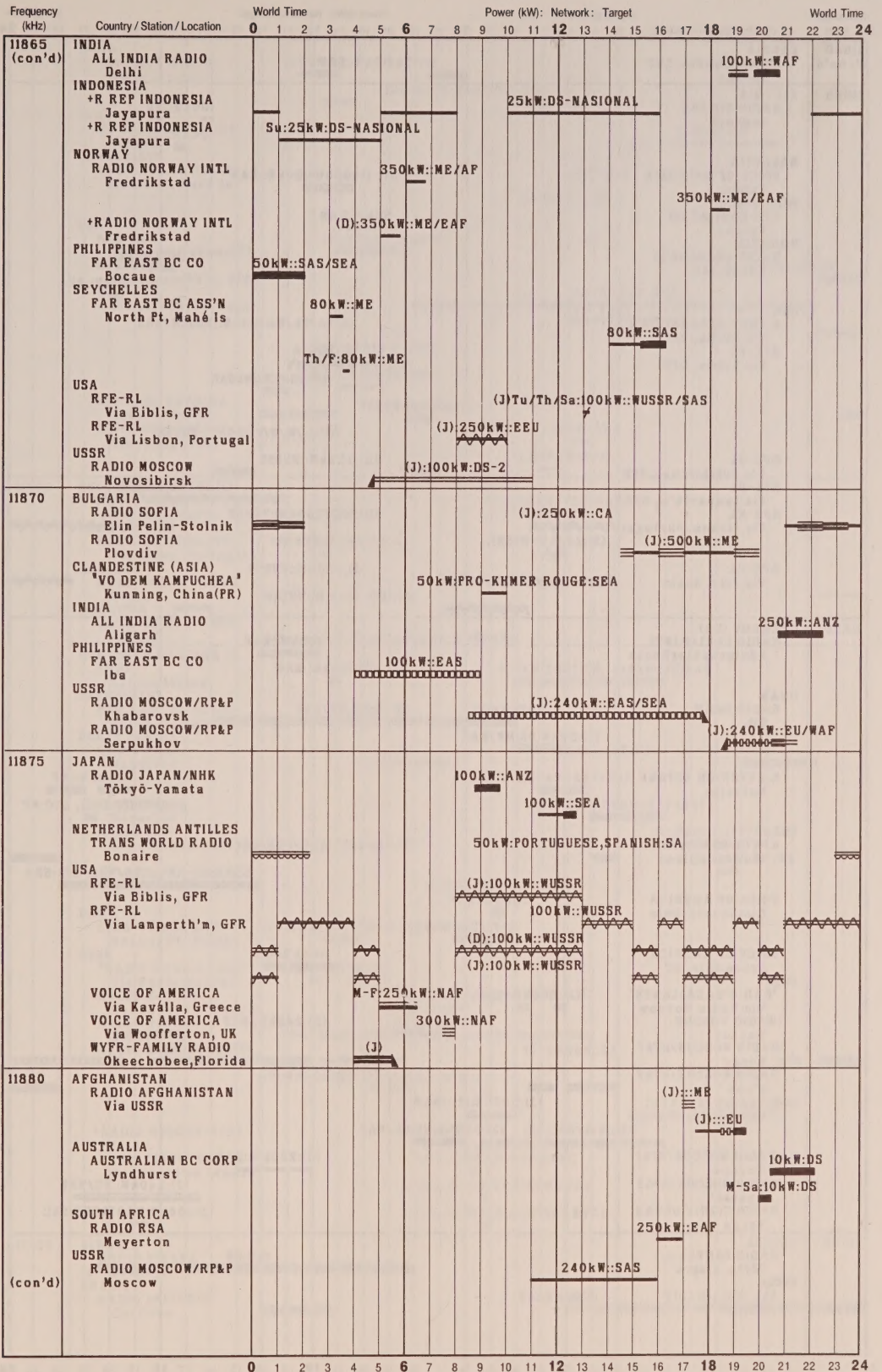
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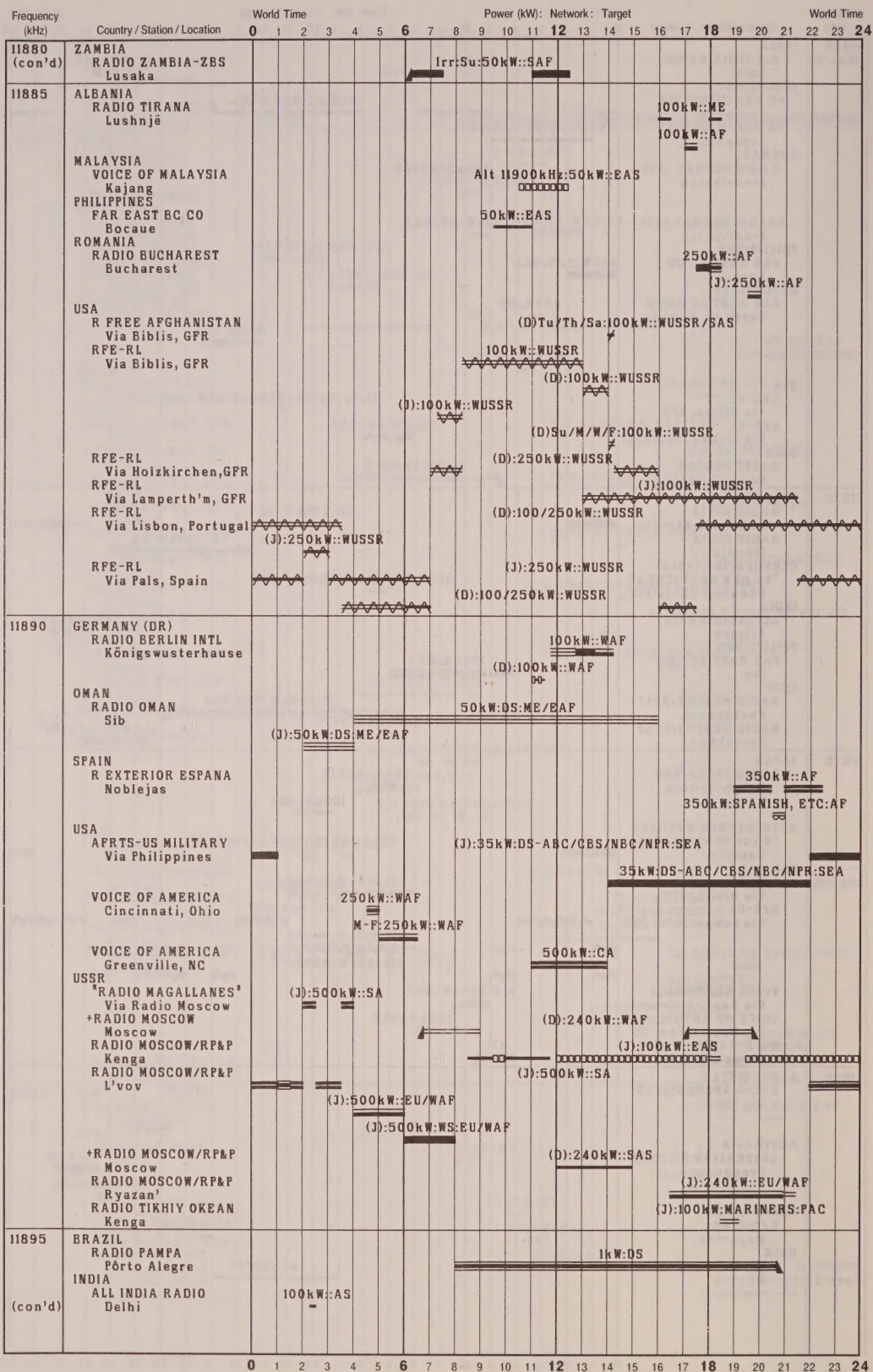
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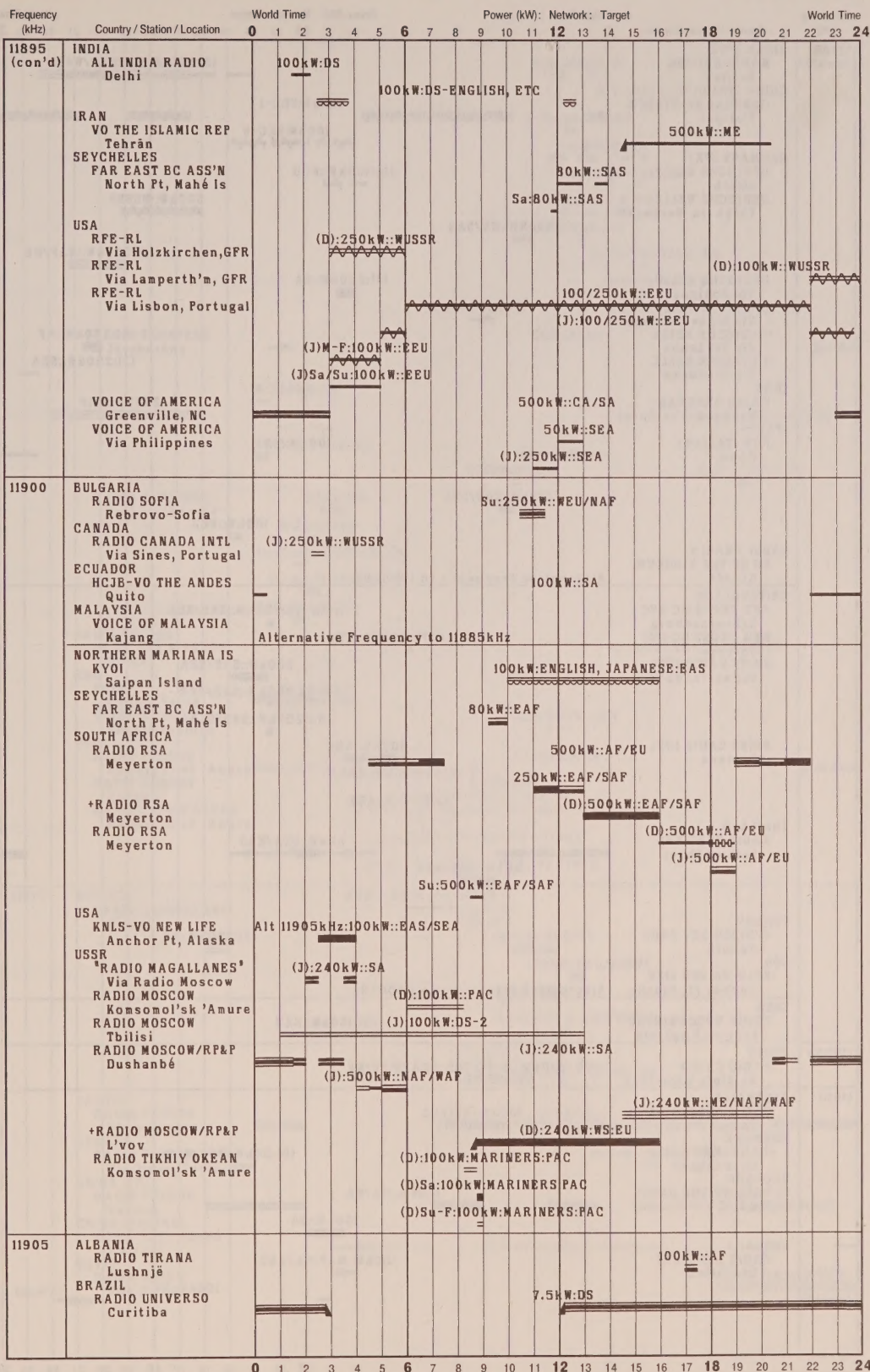
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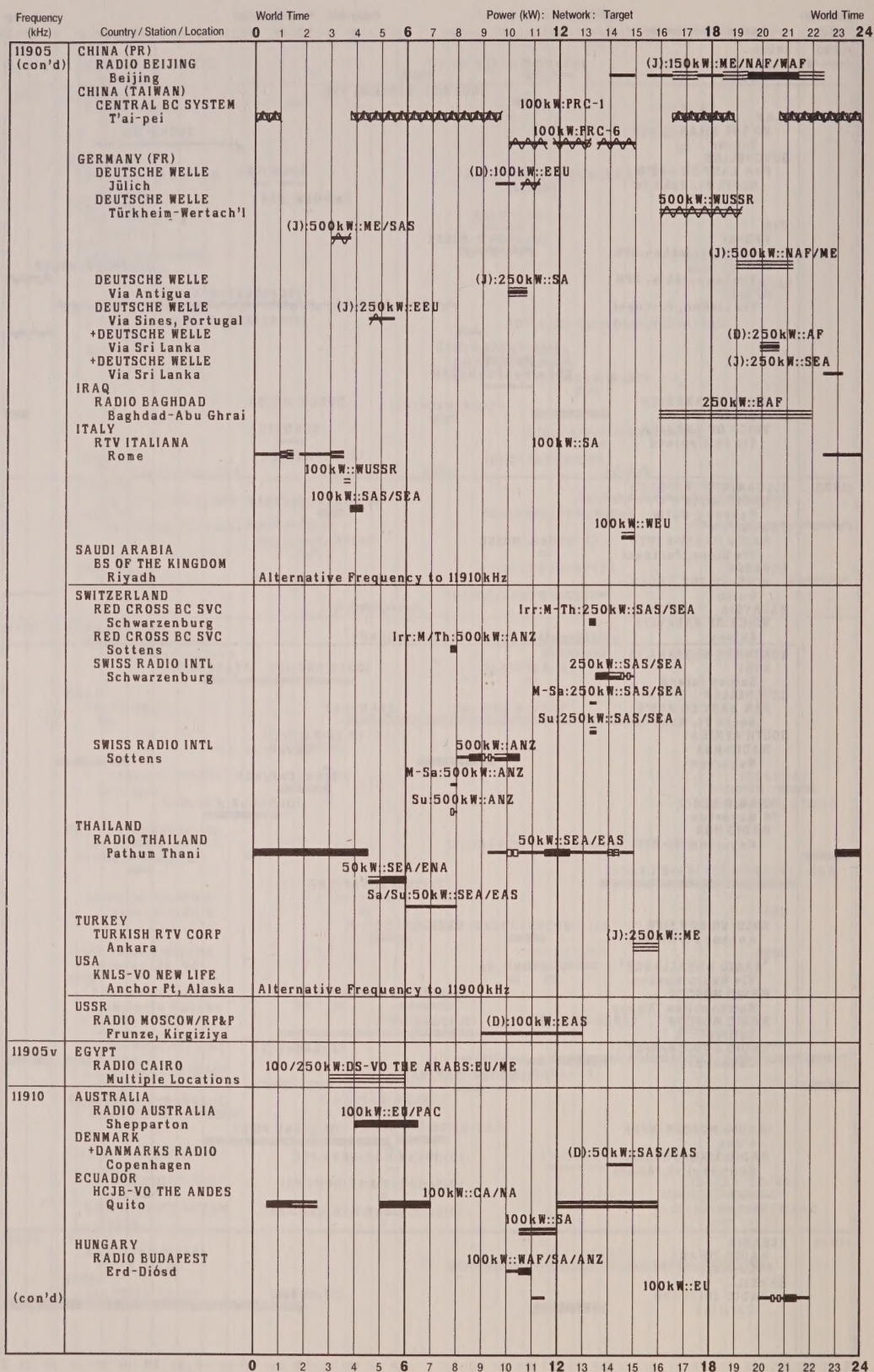


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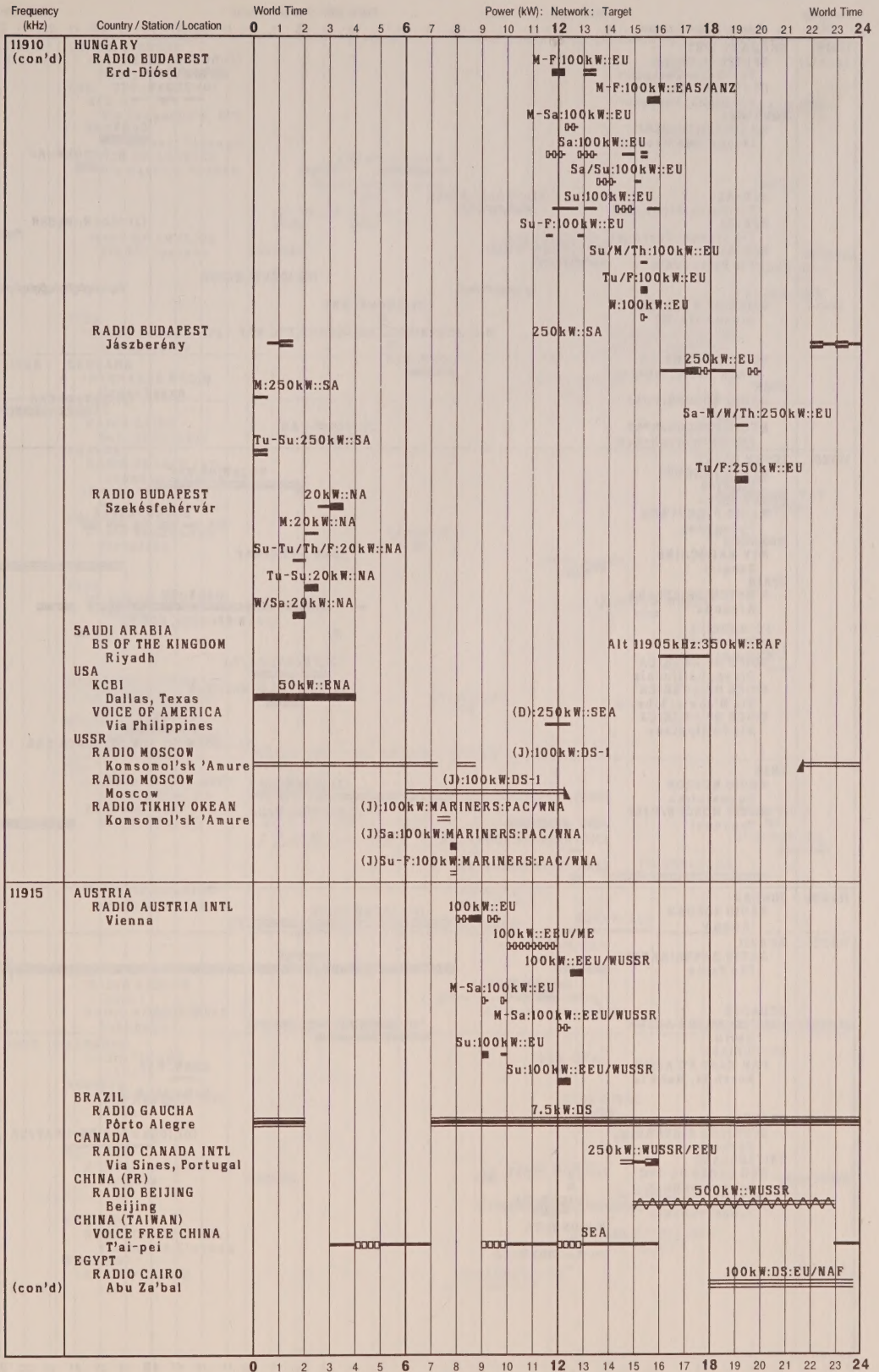


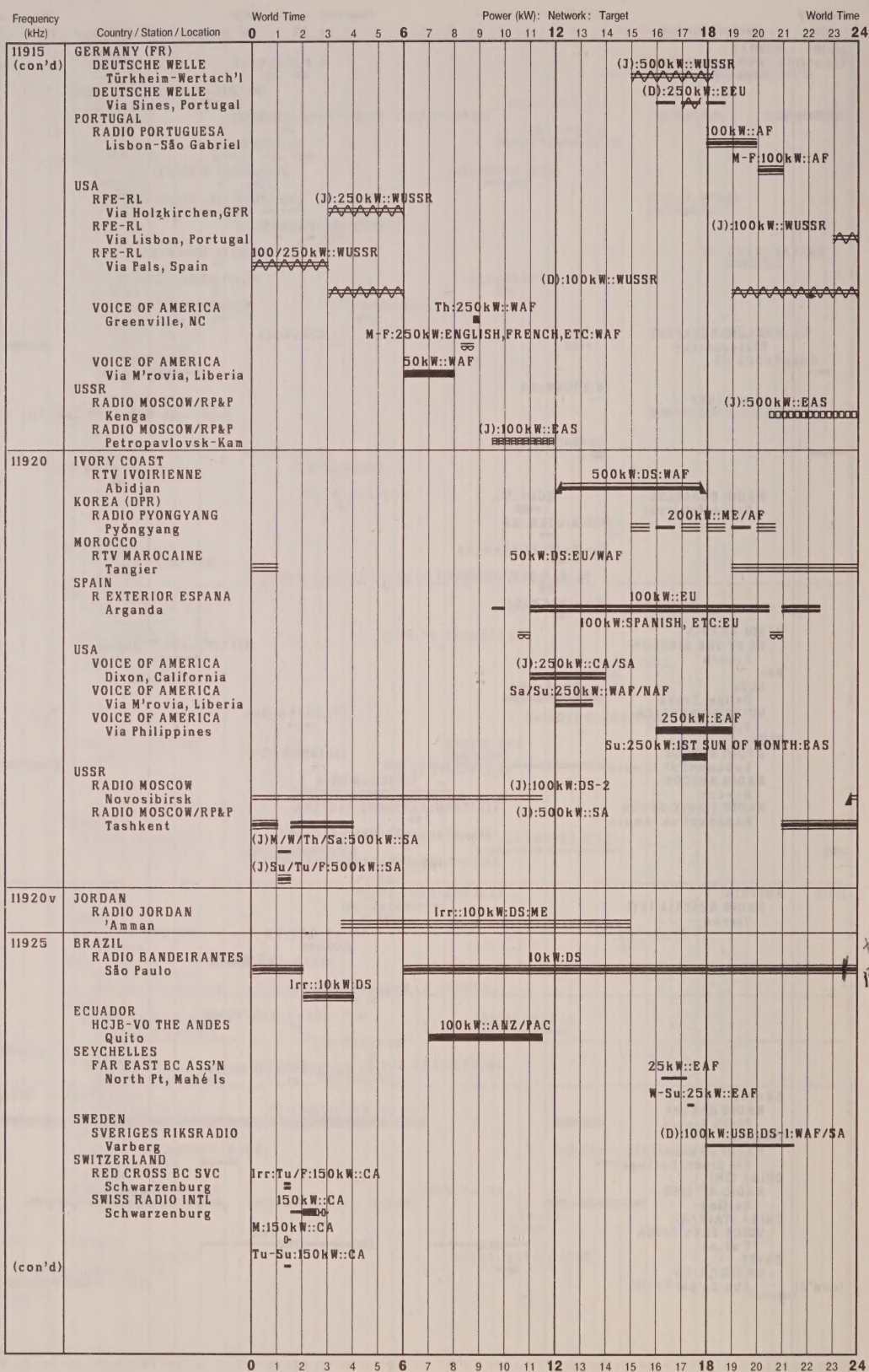


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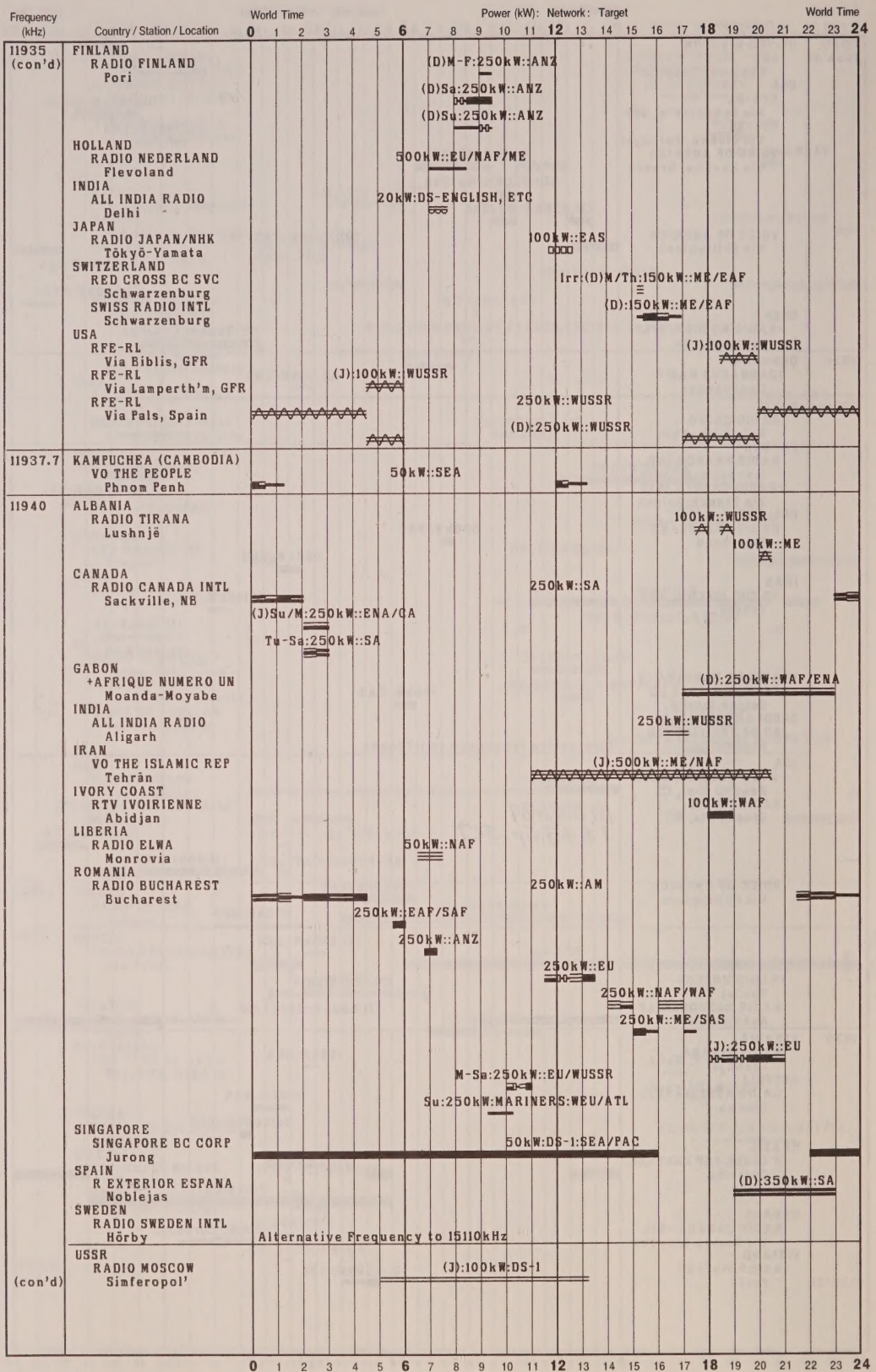




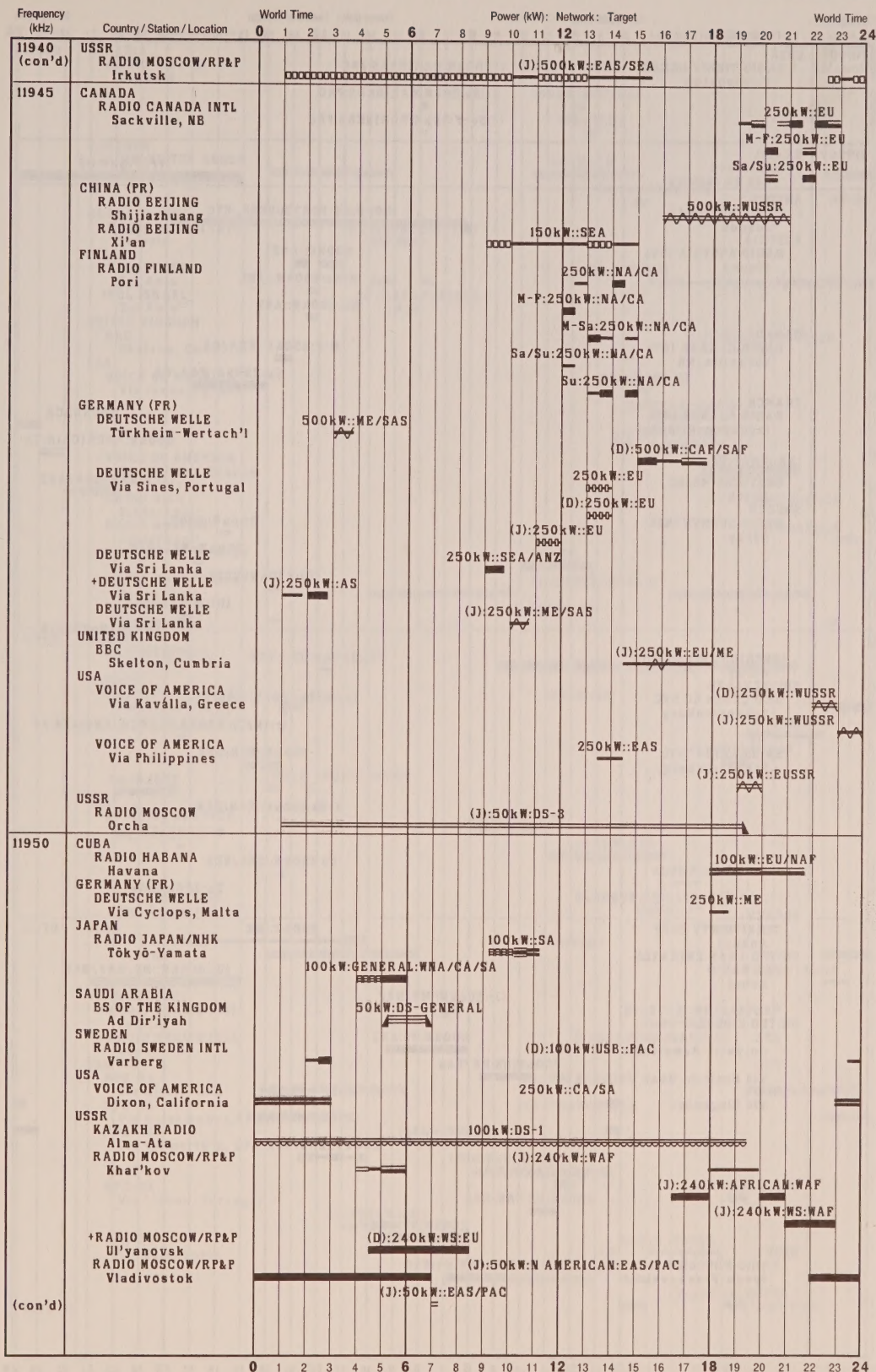
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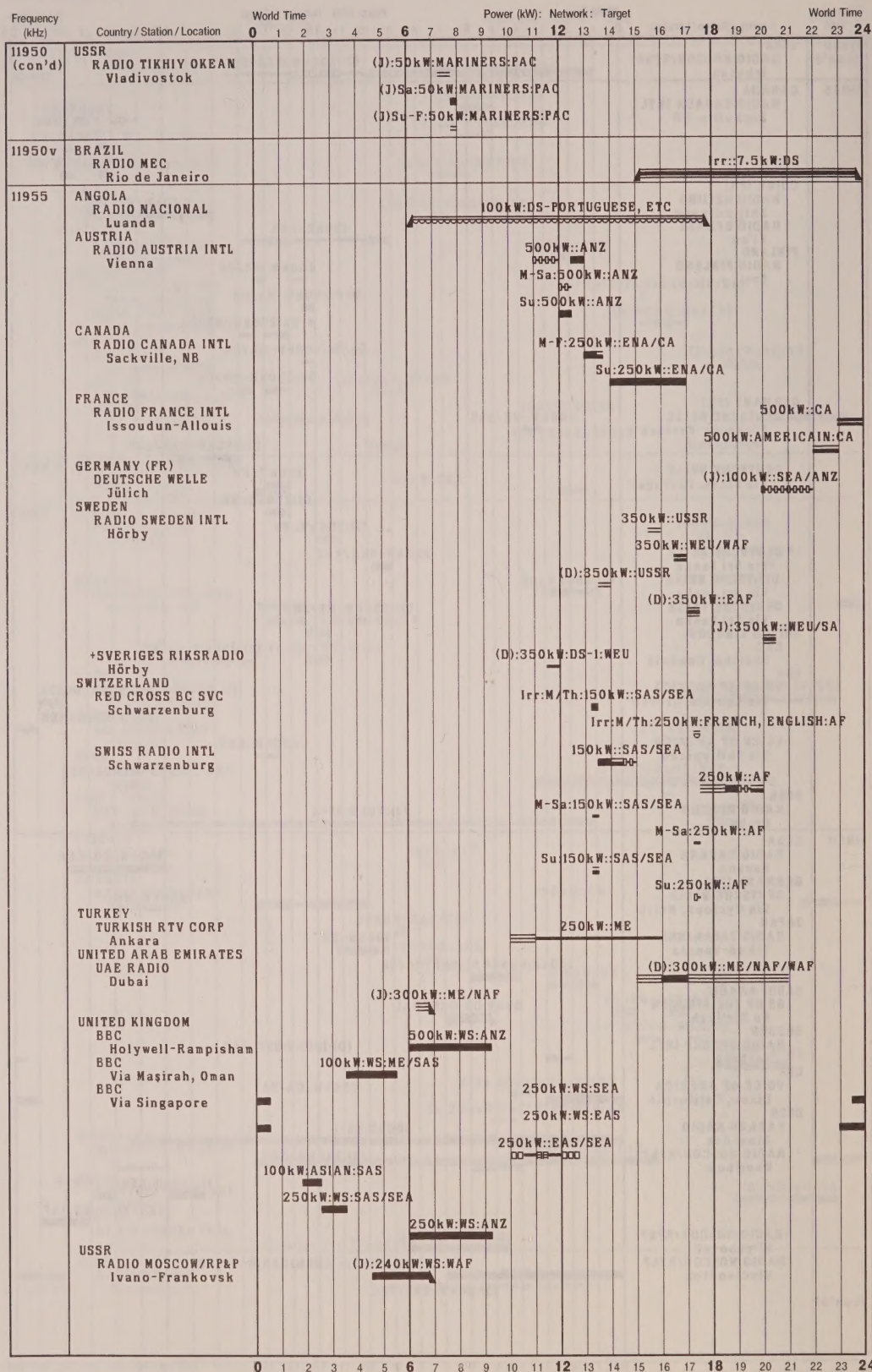
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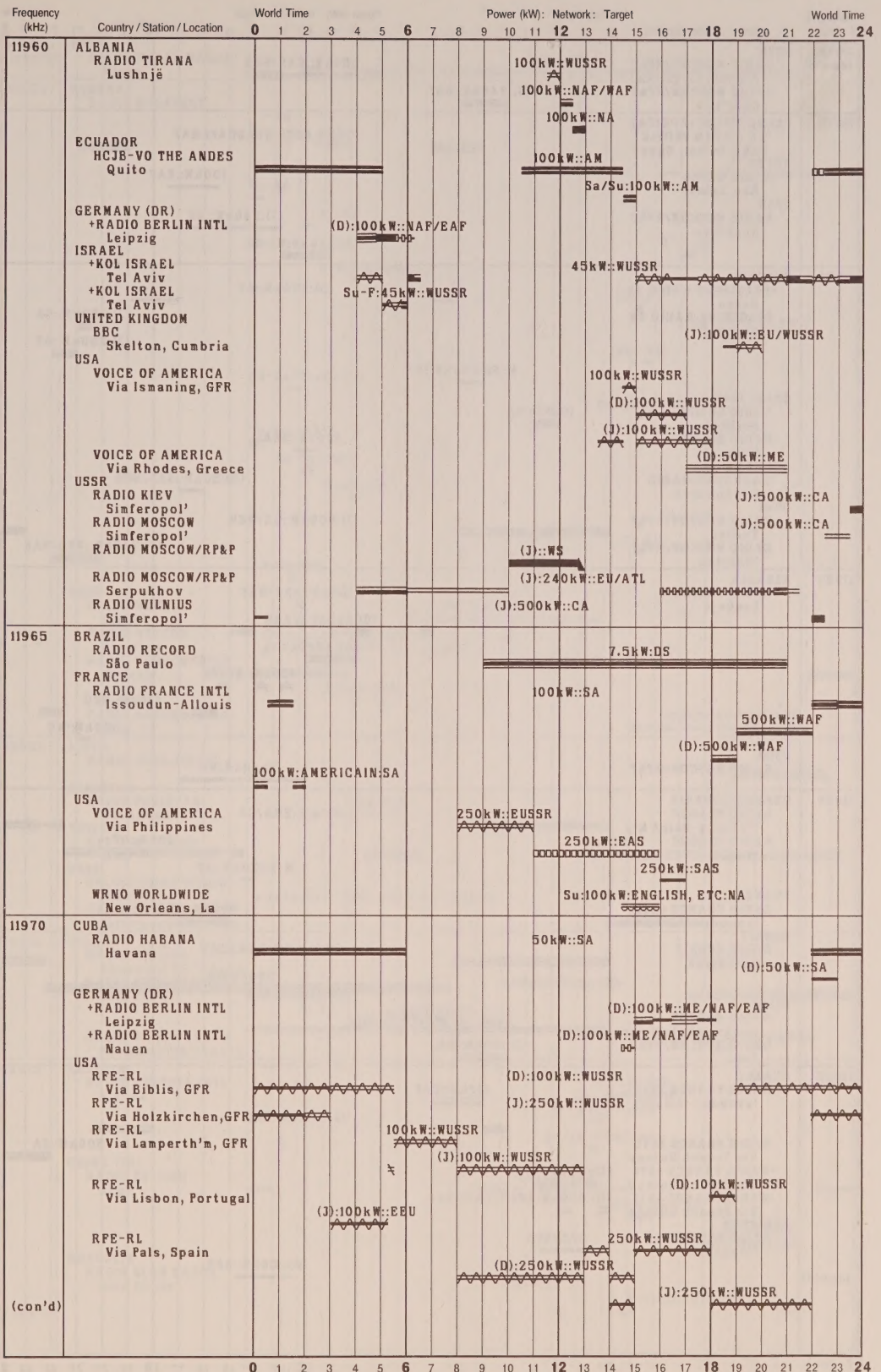
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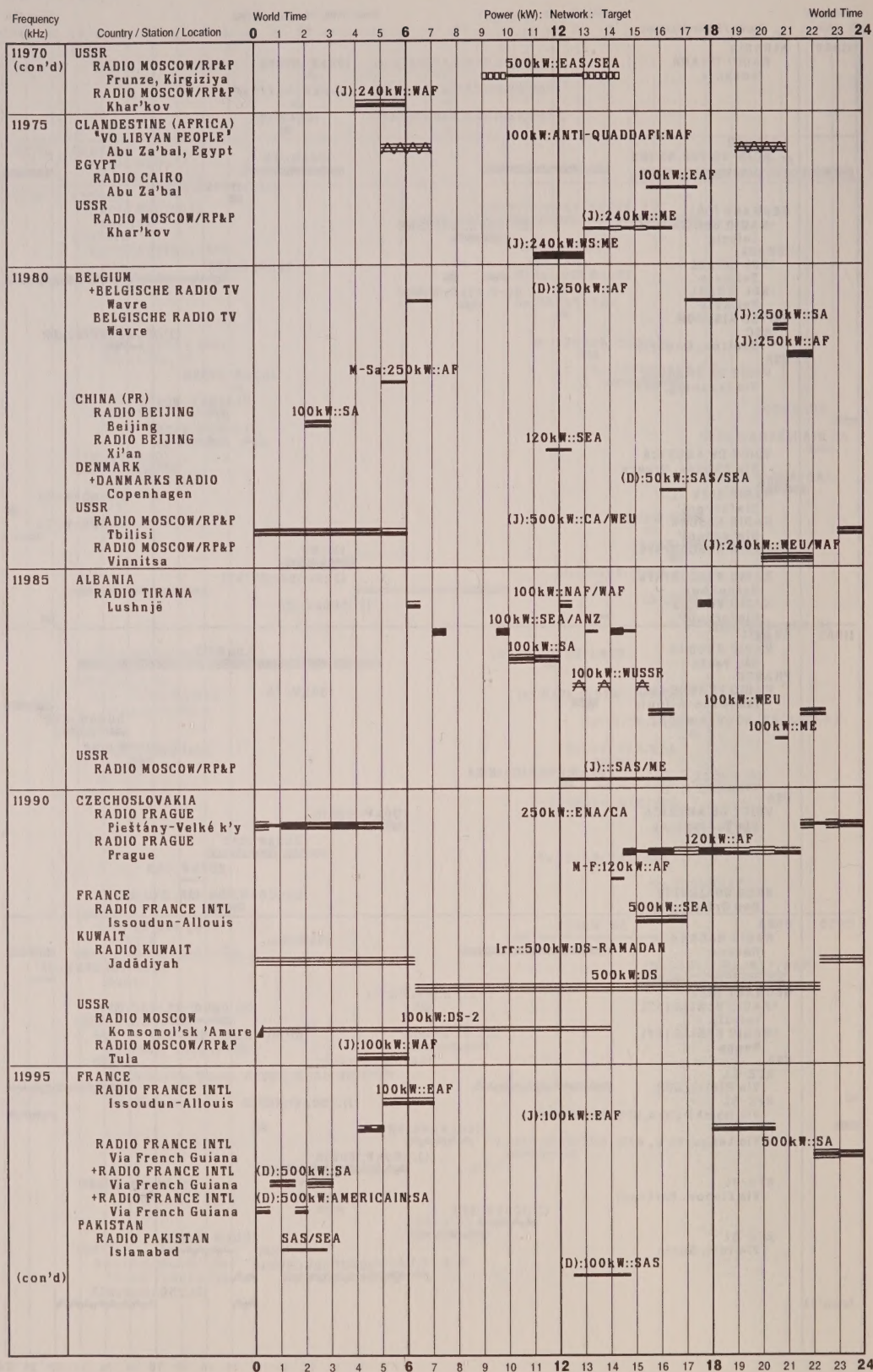
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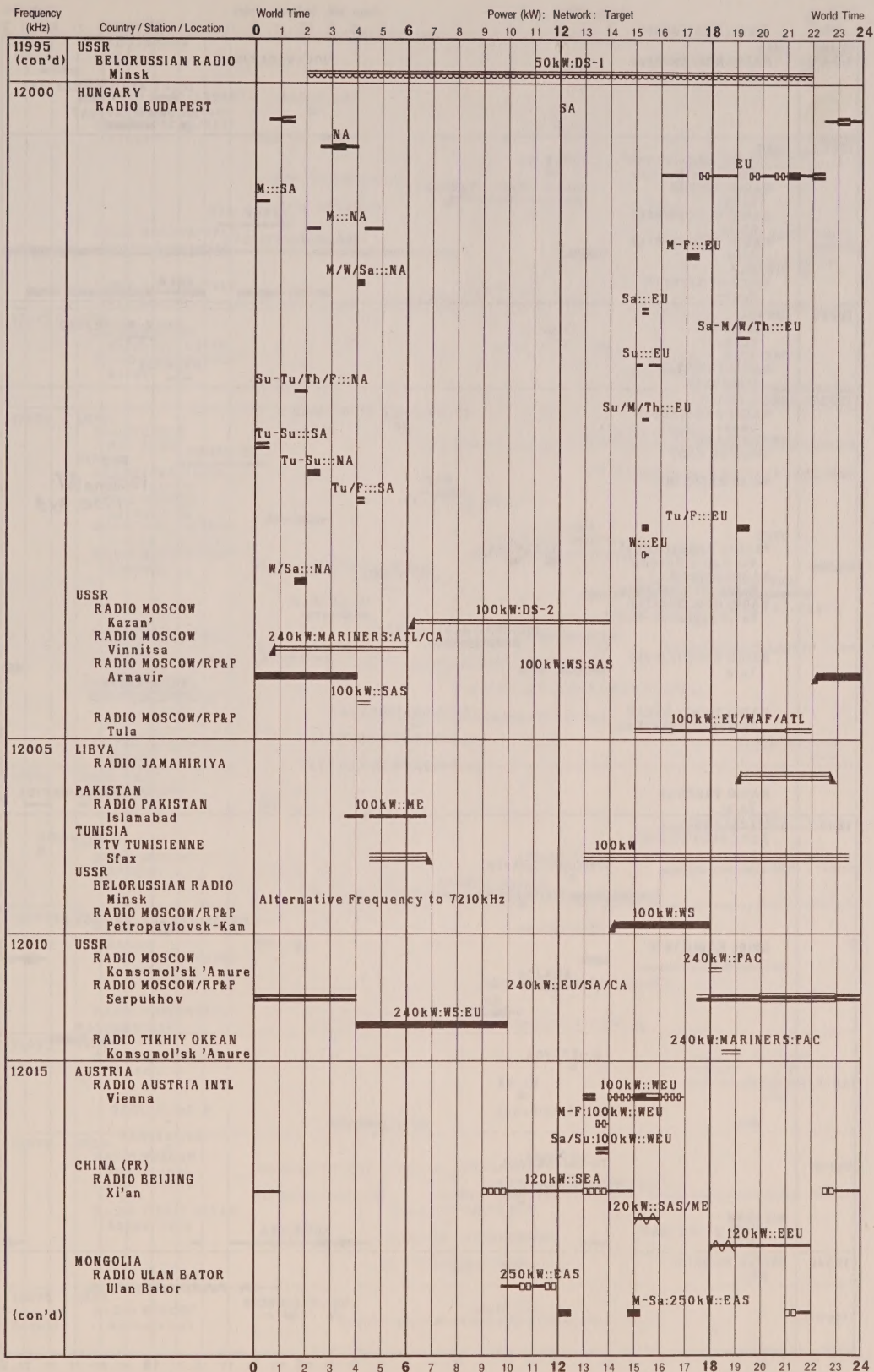
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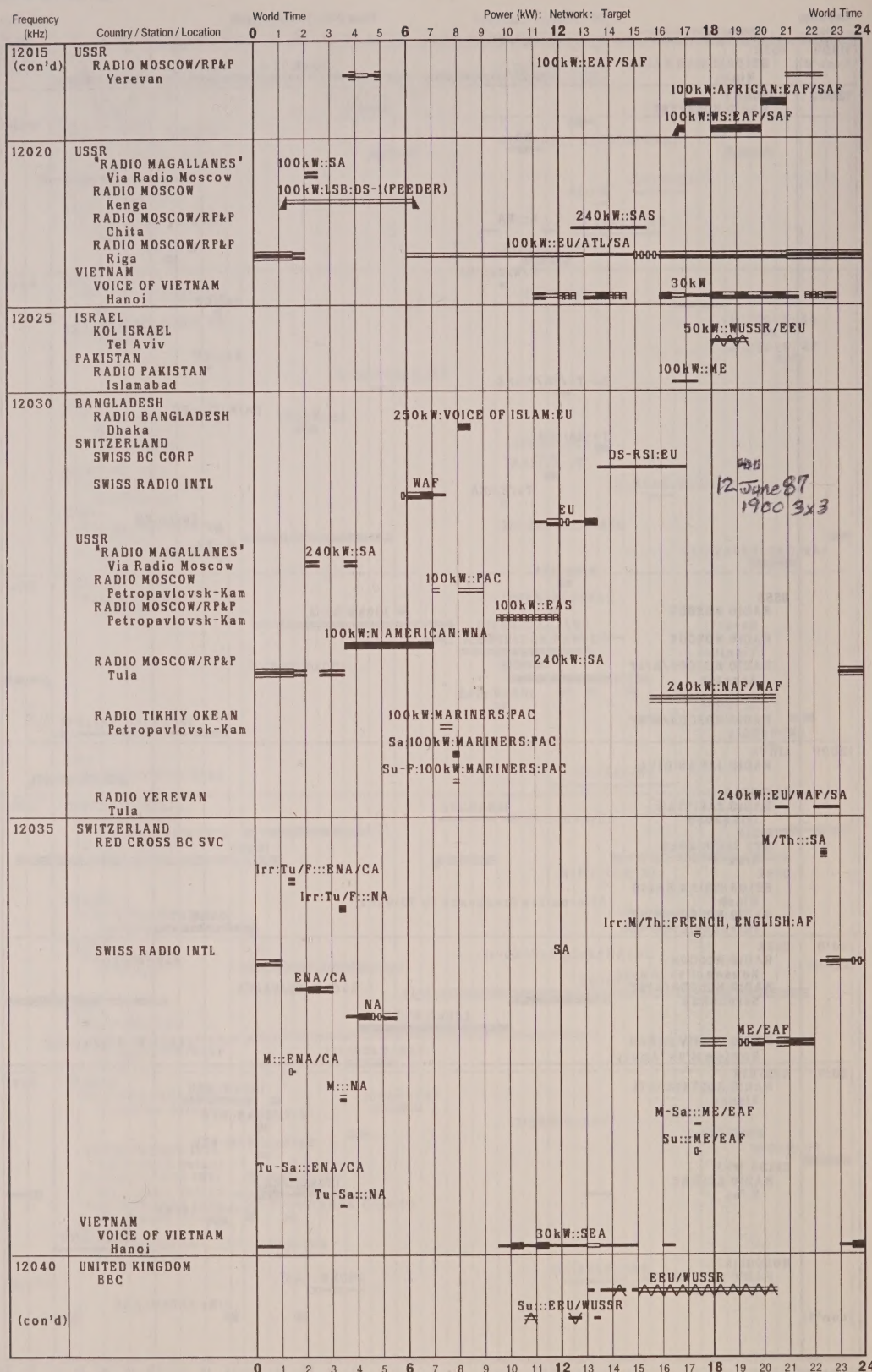
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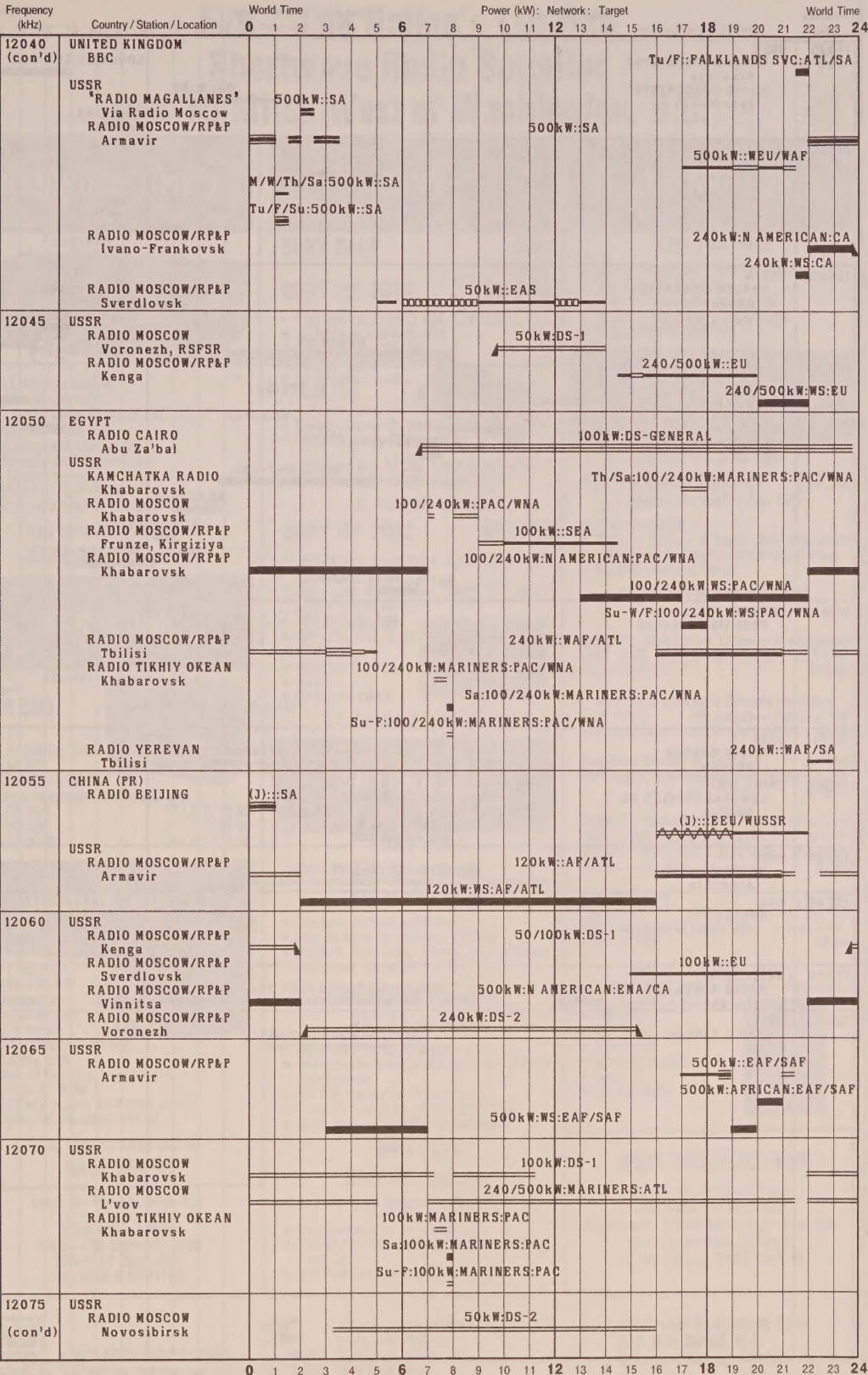


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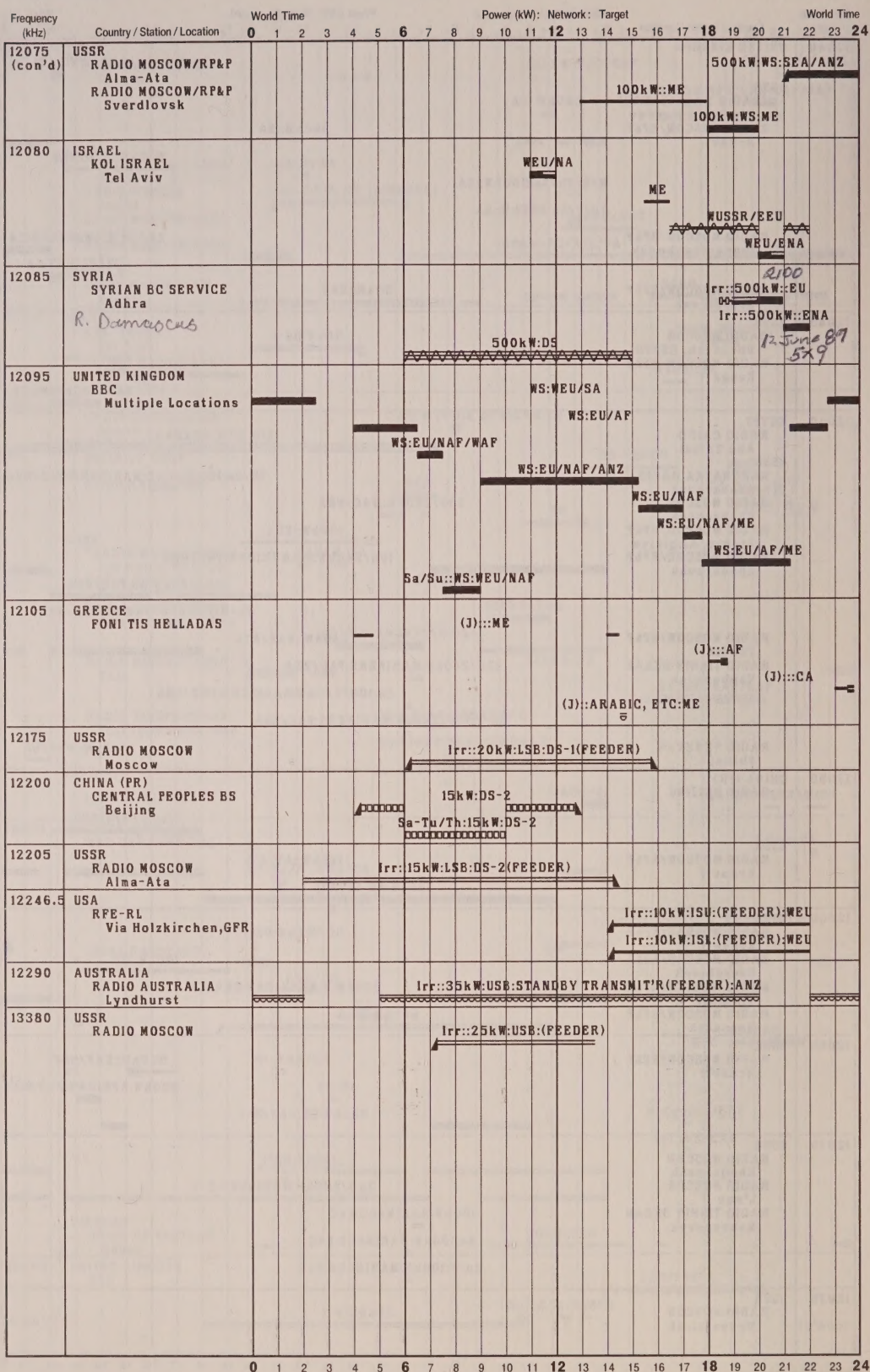


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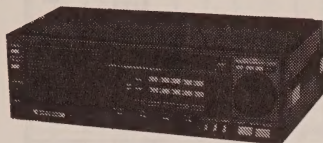


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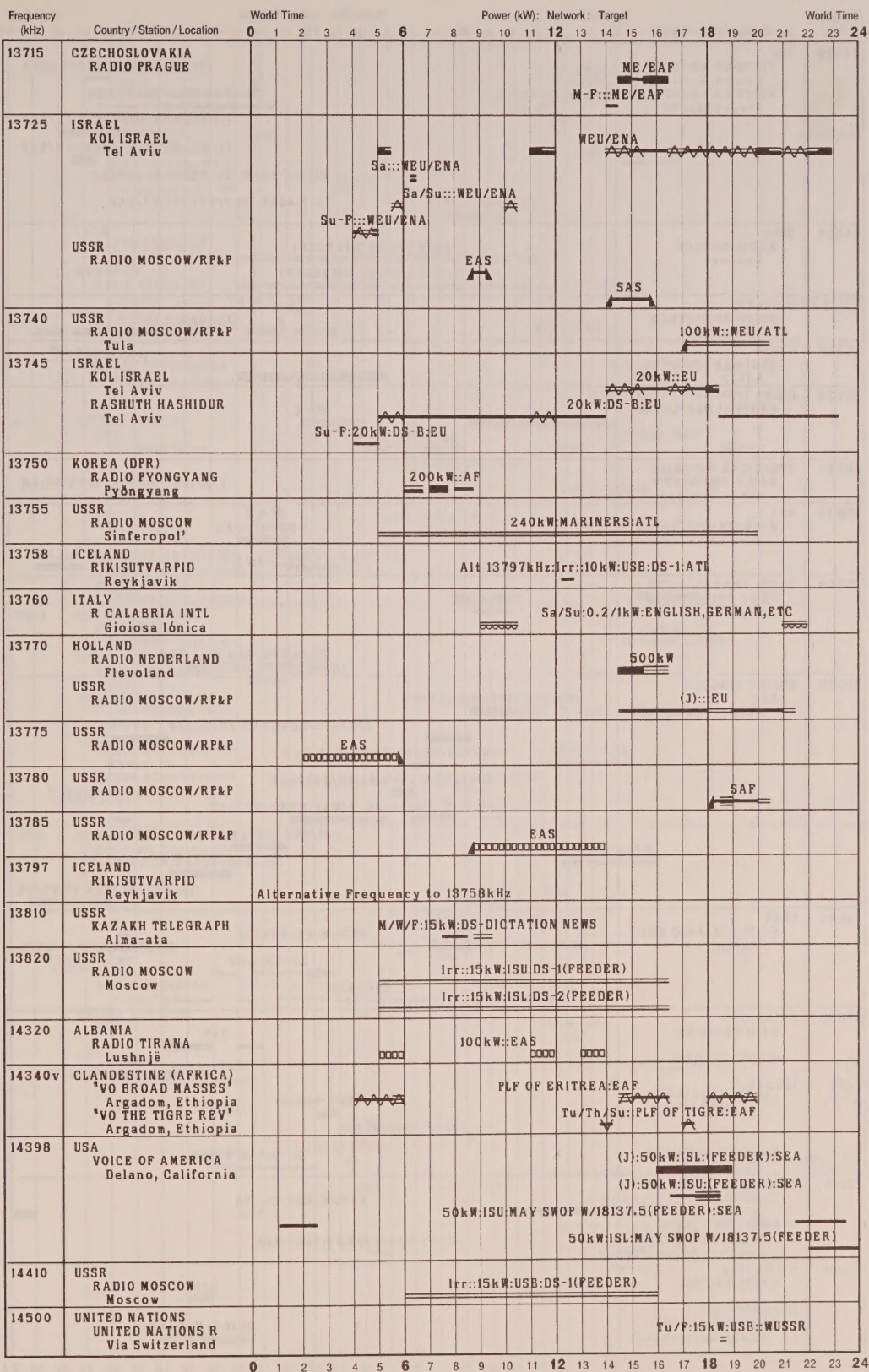
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Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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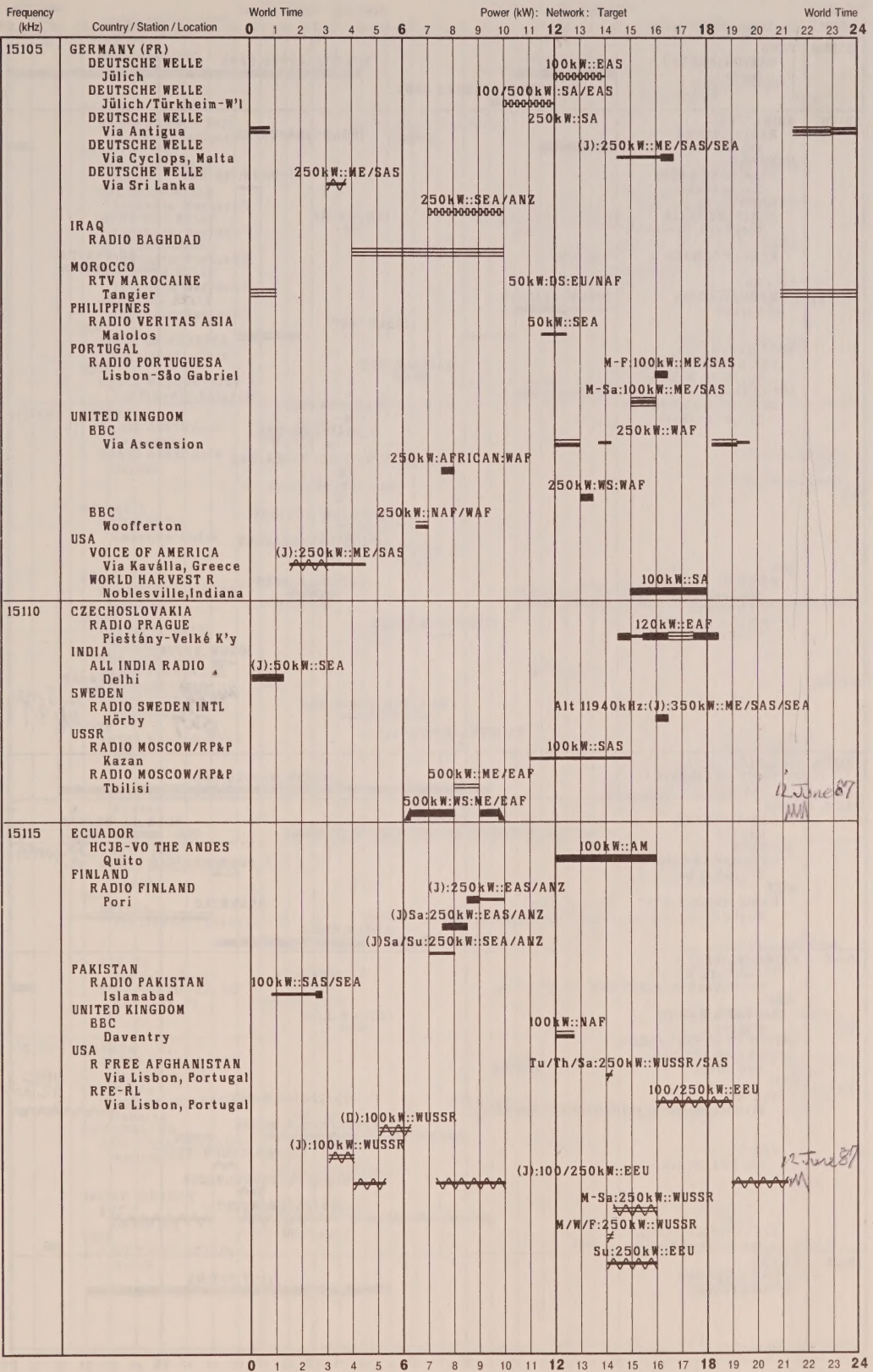


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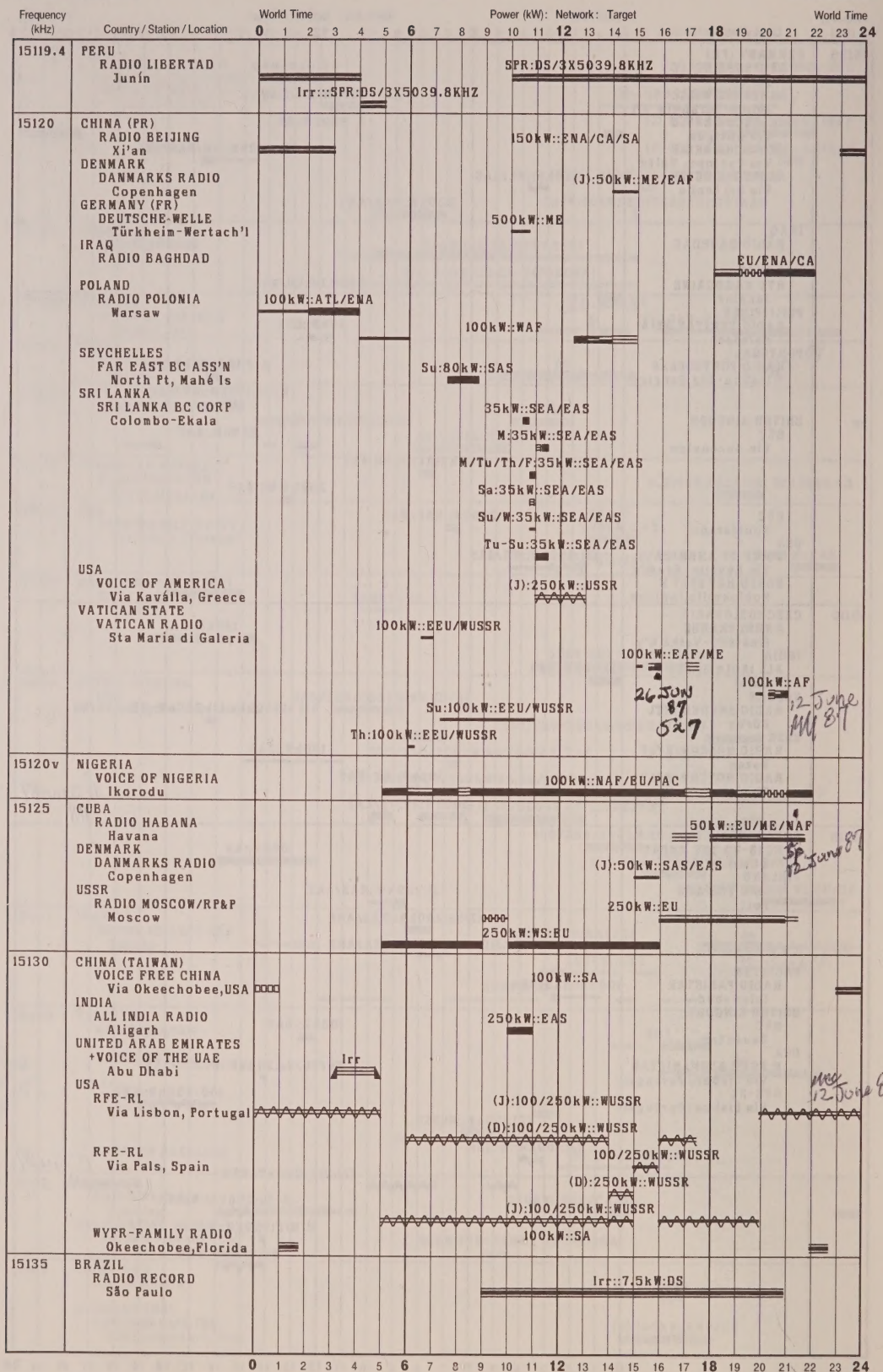
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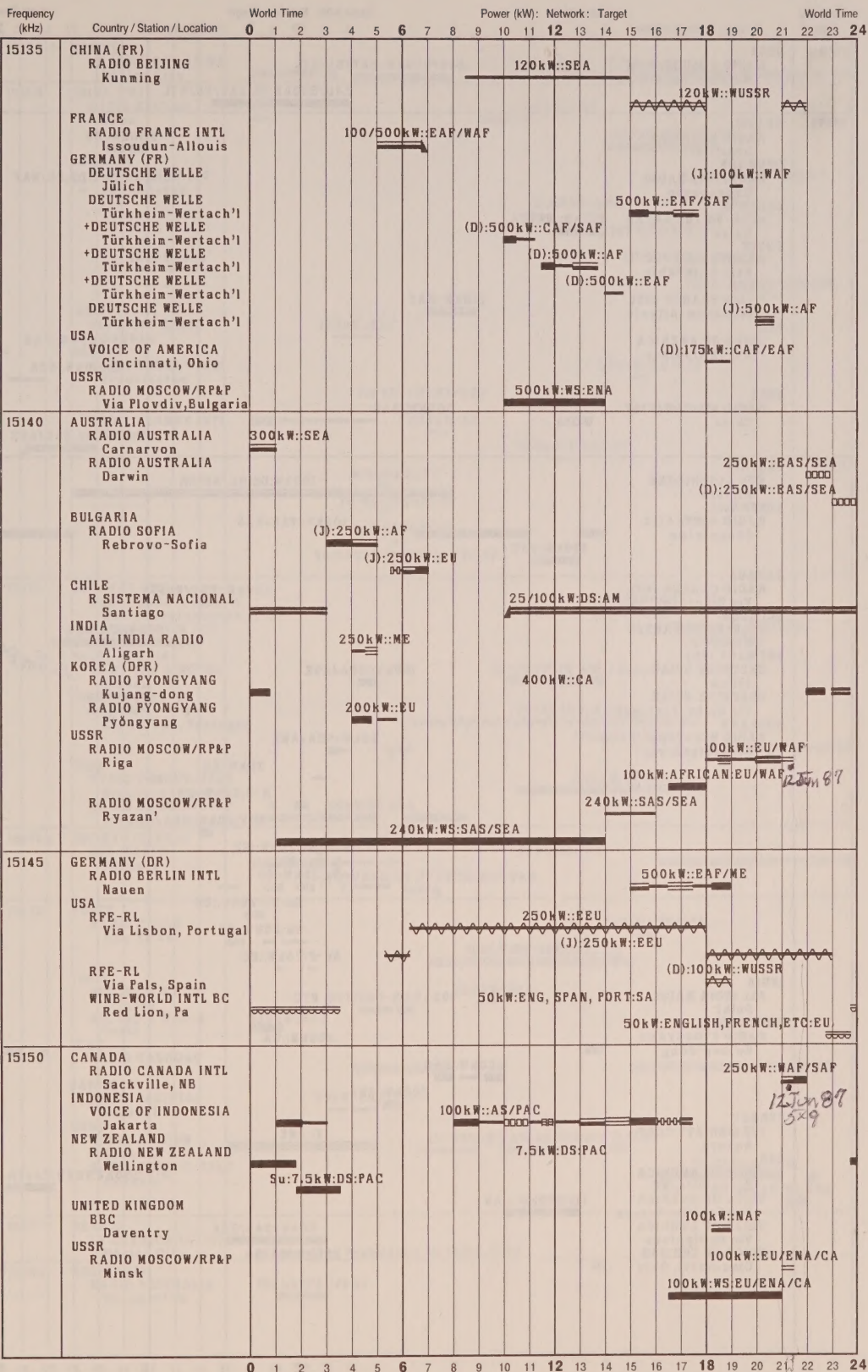
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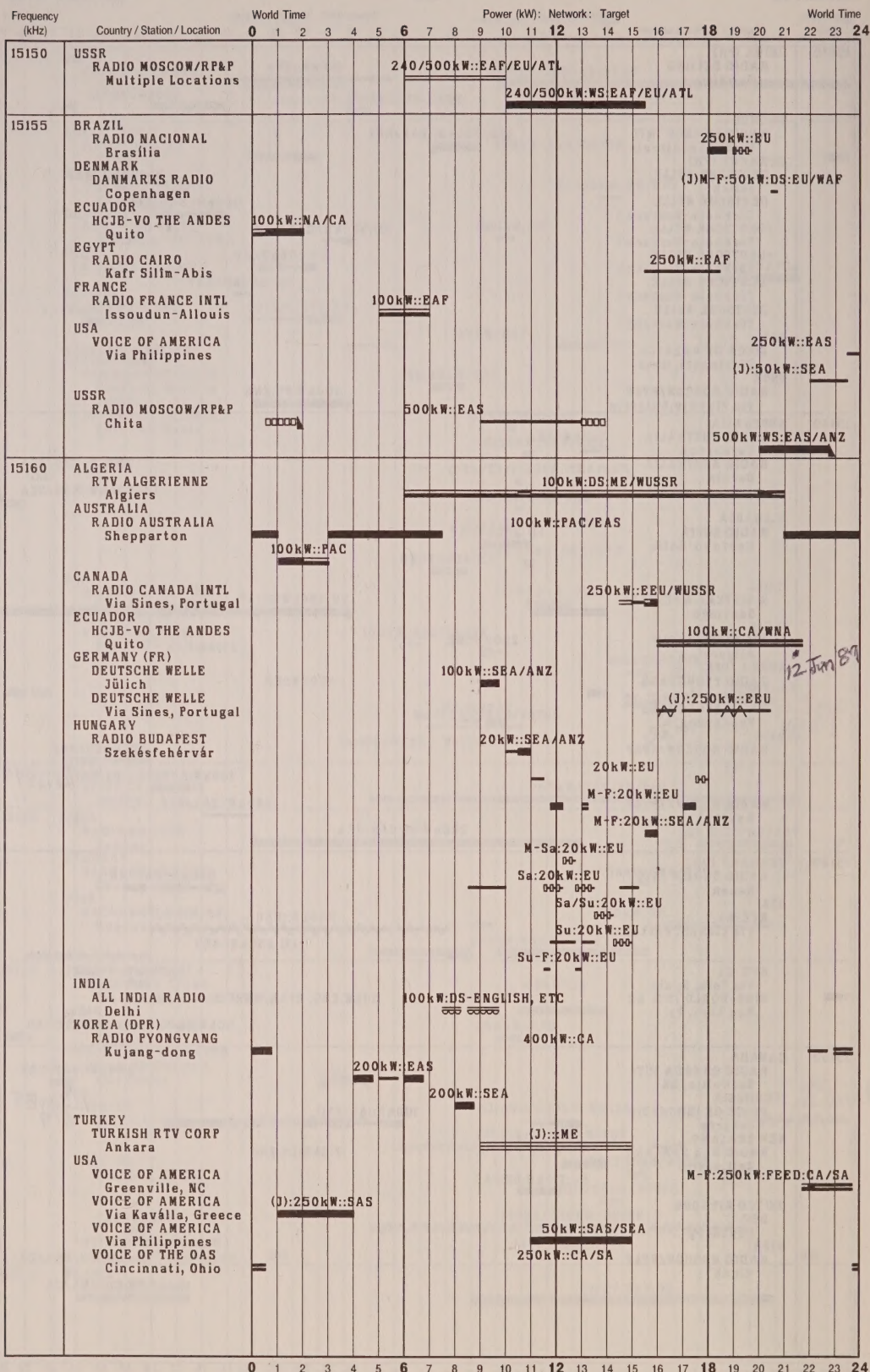


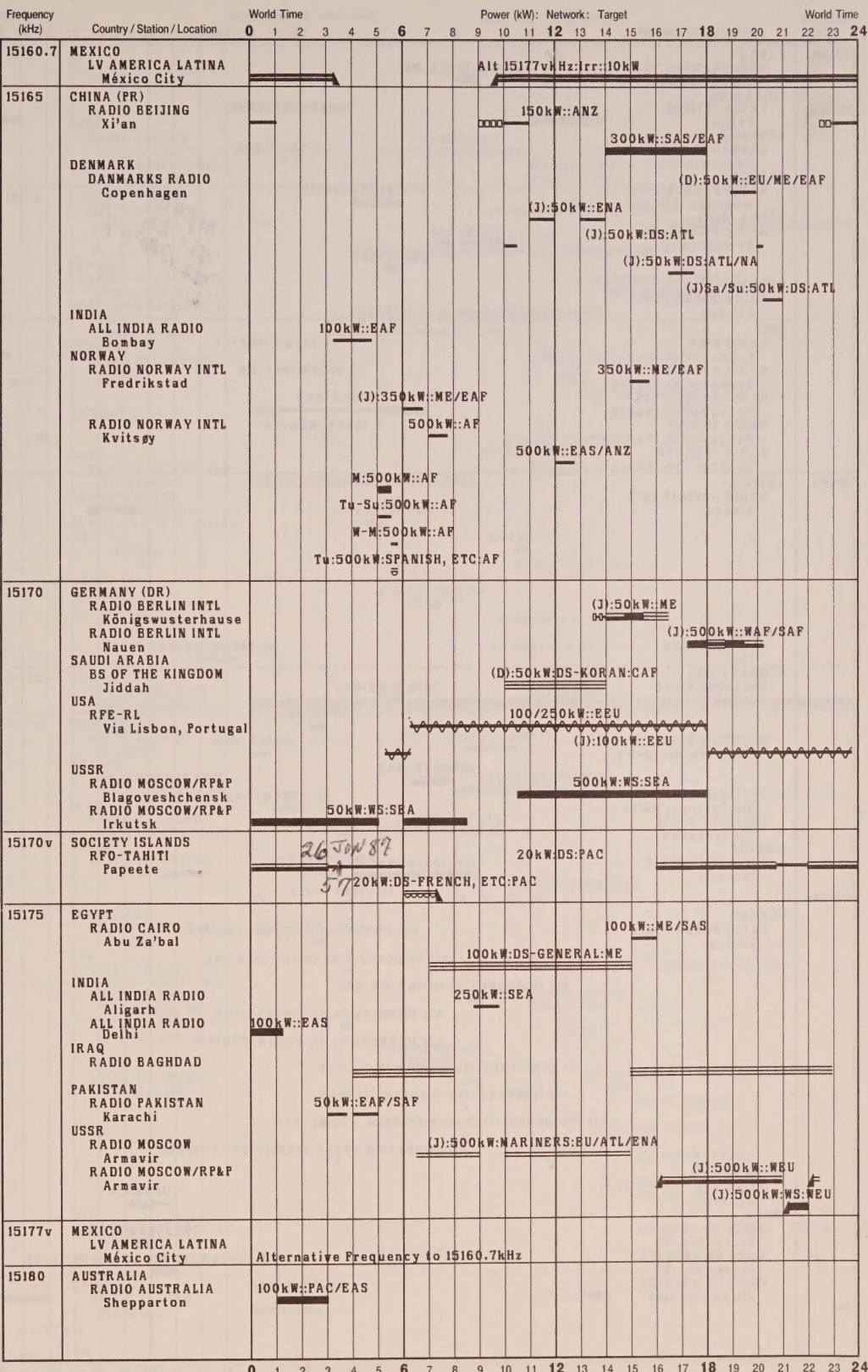
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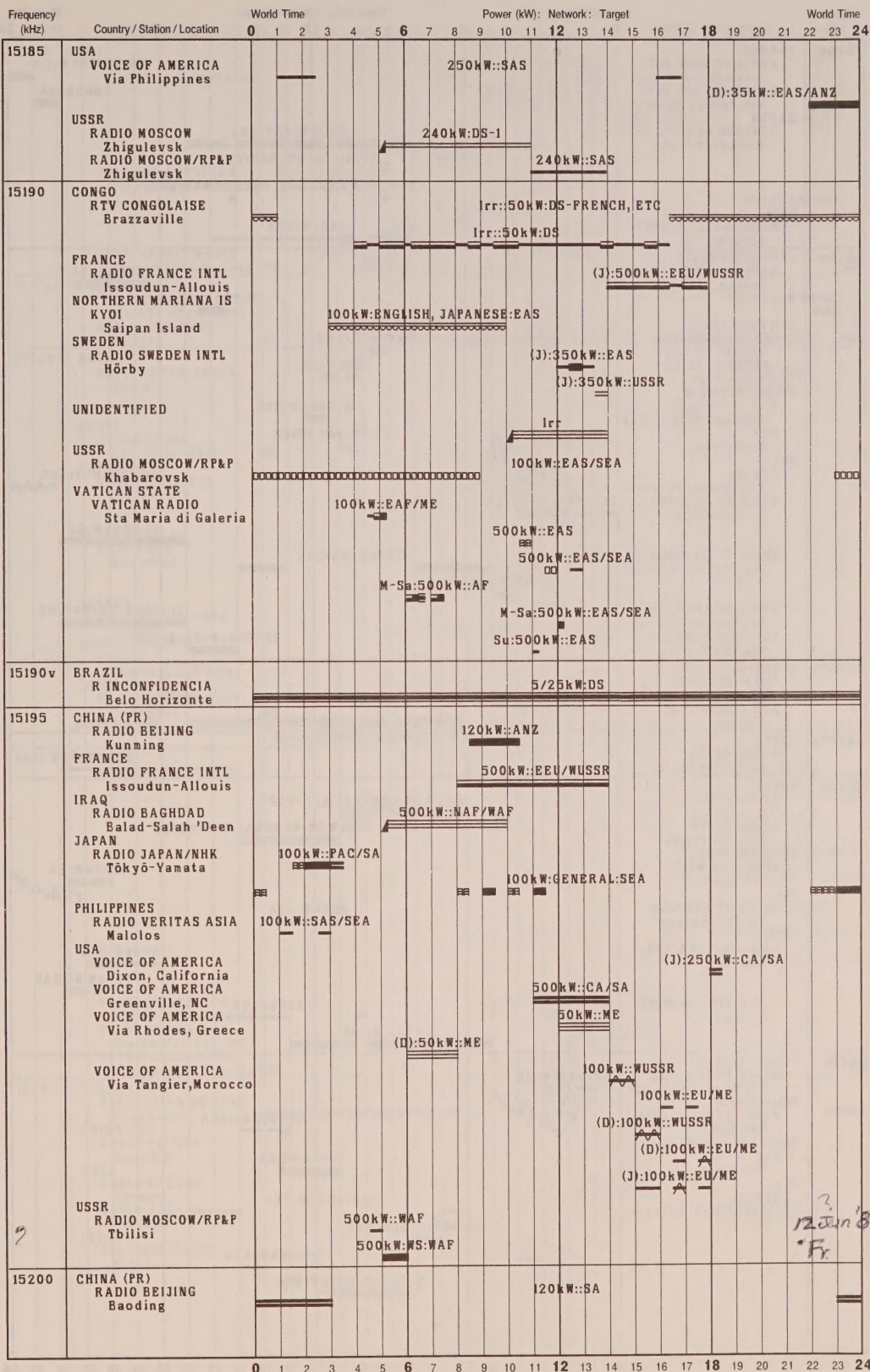
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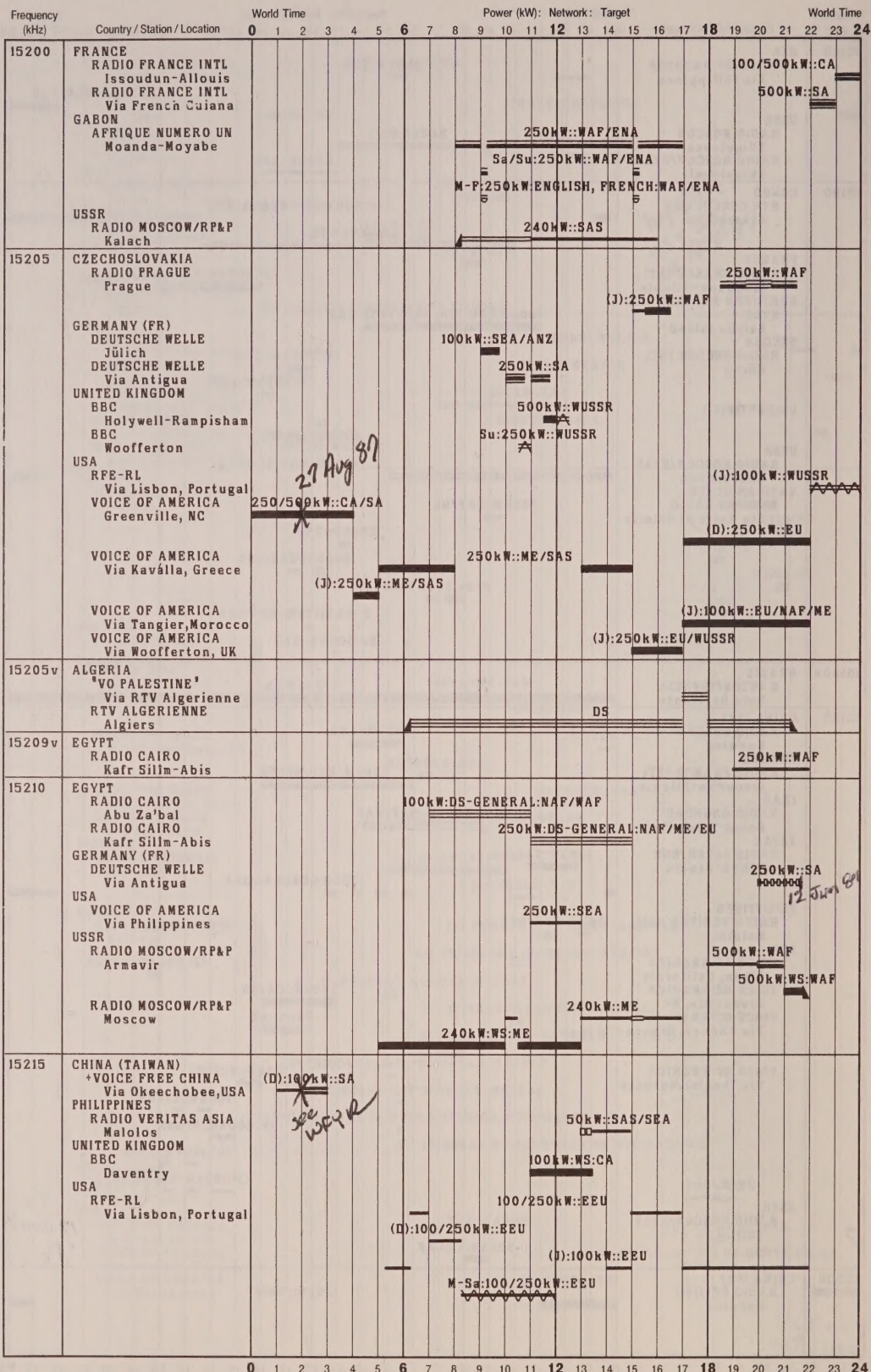
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Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																							
15180	CANADA RADIO CANADA INTL Via United Kingdom CHINA (PR) RADIO BEIJING Beijing DENMARK DANMARKS RADIO Copenhagen FRANCE RADIO FRANCE INTL Issoudun-Allouis KOREA (DPR) RADIO PYONGYANG Kujang-dong NORWAY RADIO NORWAY INTL Kvitseg	(J)M-F:100kW::ME 300kW::ENA/CA/SA (J):50kW::EAS 500kW::EEU/WUSSR 100kW::EAS 200kW::SEA Alternative Frequency to 15185kHz																							
	USSR RADIO KIEV Komsomol'sk 'Amure RADIO MOSCOW Komsomol'sk 'Amure RADIO MOSCOW/RP&P Komsomol'sk 'Amure RADIO VILNIUS Komsomol'sk 'Amure RADIO YEREVAN Komsomol'sk 'Amure	100kW::WNA/CA 100kW::WNA/CA 100kW::EAS 100kW::WNA/CA 100kW::WNA/CA																							
15185	AUSTRIA RADIO AUSTRIA INTL Vienna FINLAND RADIO FINLAND Pori GERMANY (FR) DEUTSCHE WELLE Jülich DEUTSCHE WELLE Türkheim-Wertach'l DEUTSCHE WELLE Via Cyclops, Malta DEUTSCHE WELLE Via Sri Lanka NIGERIA VOICE OF NIGERIA Ikorodu NORWAY RADIO NORWAY INTL Kvitseg SOUTH AFRICA RADIO RSA Meyerton USA +VOICE OF AMERICA Greenville, NC VOICE OF AMERICA Greenville, NC VOICE OF AMERICA Via Philippines	(J) (J)M-F (J)M-Sa (J)Sa/Su (J)Su (J):250kW::ME/EAF 100kW::ME/SAS 100kW::EAS 500kW::SEA (J):500kW::WAF (J):250kW::EAS 250/300kW::ME Irr:100kW::NAF/EU Irr:100kW::SAF Alt 15180kHz:(D):500kW::EAS/PAC Alt 15180kHz:M-Sa:500kW::EAS/PAC Alt 15180kHz:(J)M:500kW::ME/EAF Alt 15180kHz:Su:500kW::EAS/PAC Alt 15180kHz:TU-Su:500kW::EAS/PAC Alt 15180kHz:(J)Tu-Su:500kW::ME/EAF Alt 15180kHz:(J)W-M:500kW::ME/EAF Alt 15180kHz:(J)Tu:500kW::SPANISH, ETC:ME/EAF Alt 15180kHz:M:500kW::SPANISH, ETC:EAS/PAC 250kW::EU (D):250kW::CA/SA Su:250kW::1ST SUN OF MONTH:CA/SA (J):50kW::SEA																							



3
12 Jan '87
Fr

ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / اعراب — RUSSIAN / РУССКИЙ — CHINESE / 中文 — JAPANESE / 日本語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE

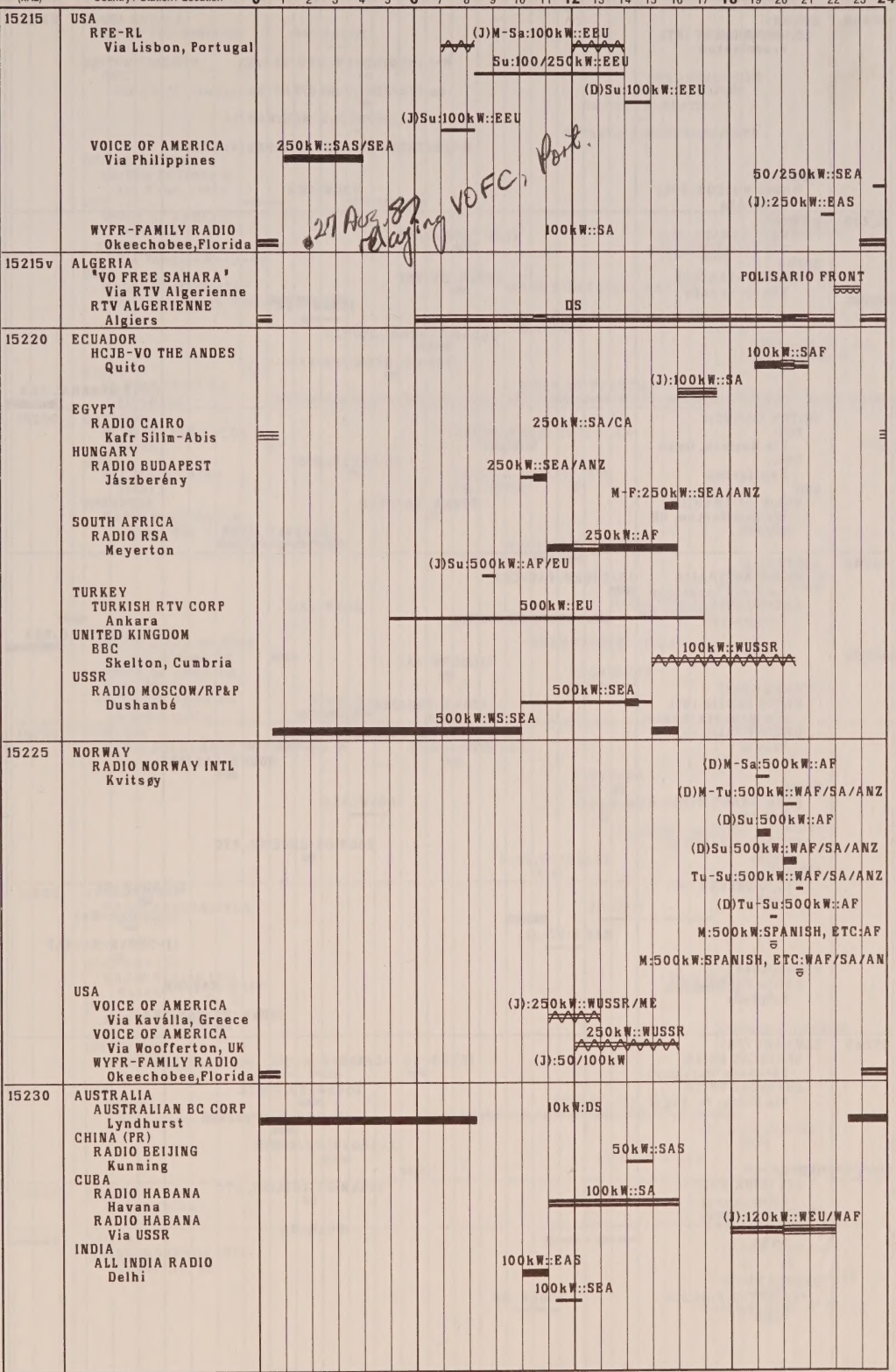
Frequency
(kHz)

Country / Station / Location

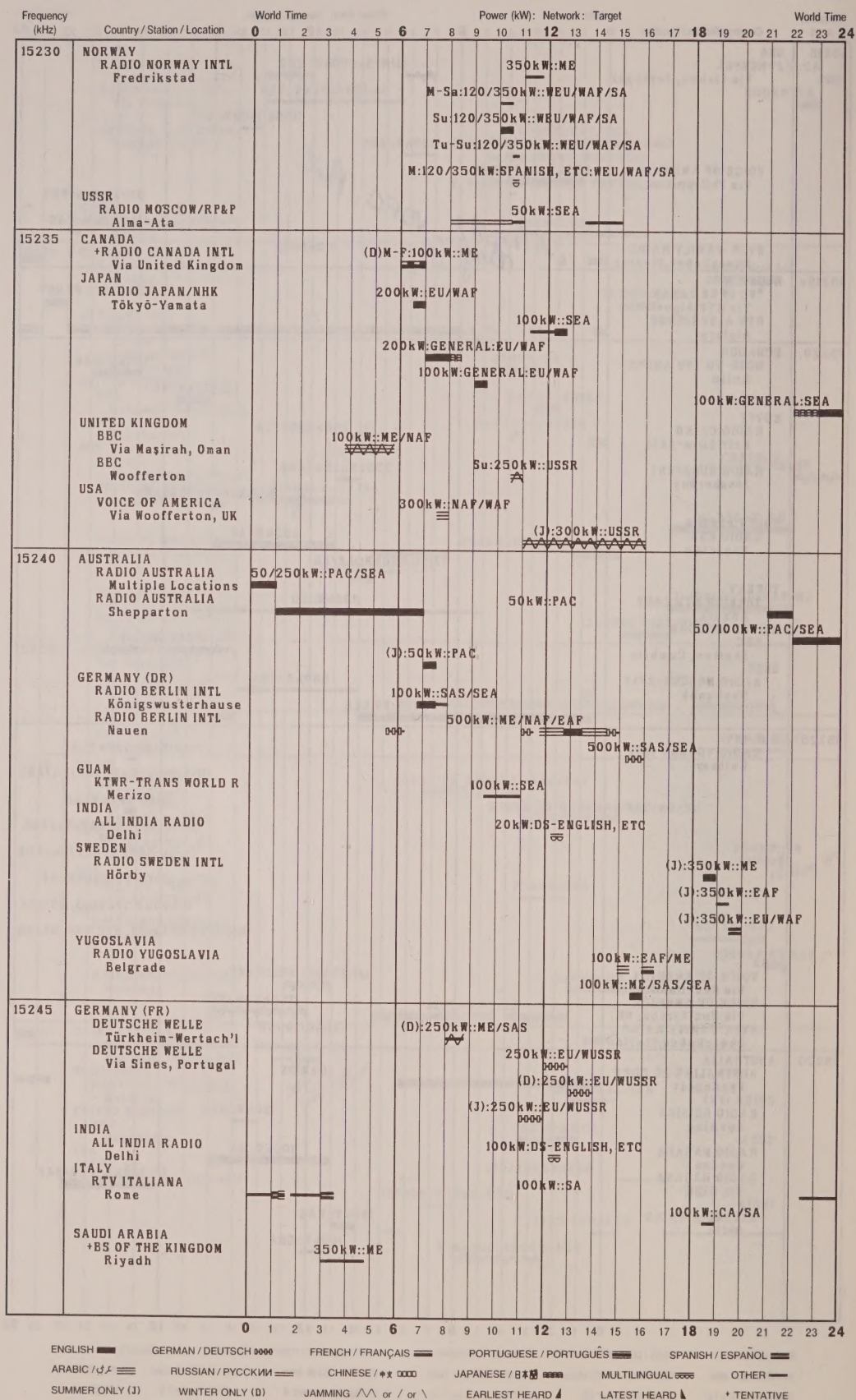
World Time

Power (kW): Network: Target

World Time

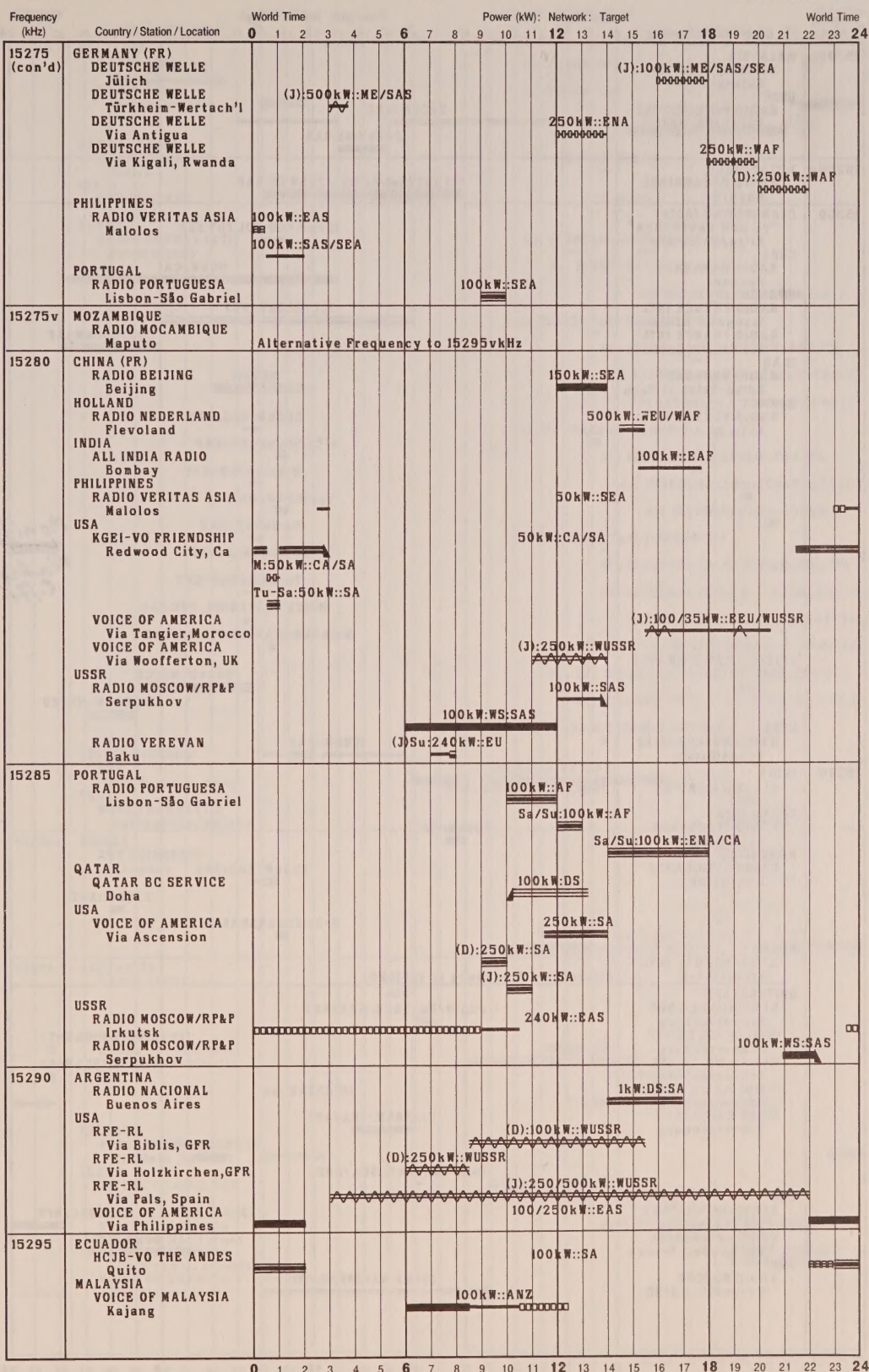


ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / 0000 RUSSIAN / РУССКИЙ — CHINESE / 0000 JAPANESE / 0000 MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE



ENGLISH 	GERMAN / DEUTSCH 	FRENCH / FRANÇAIS 	PORTUGUESE / PORTUGUÊS 	SPANISH / ESPAÑOL 
ARABIC / 	RUSSIAN / РУССКИЙ 	CHINESE / 中文 	JAPANESE / 日本語 	MULTILINGUAL 
SUMMER ONLY (J) 	WINTER ONLY (D) 	JAMMING  or / or \	EARLIEST HEARD 	LATEST HEARD 
				+ TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																							
15260	CHINA (PR) RADIO BEIJING Xi'an GERMANY (FR) DEUTSCHE WELLE Jülich UNITED KINGDOM BBC Via Ascension BBC Via Sackville, Can USA AFRTS-US MILITARY Via Tokyo, Japan VOICE OF AMERICA Via Kavála, Greece USSR RADIO MOSCOW/RP&P Baku	150kW::SEA 100kW::WAF/SA 250kW::WS:SA 100kW::WS:NA Sa/Su:100kW::WS:NA 10kW::FAR EAST NET:EAS (J):250kW::ME (J):240kW::WS:EU																							
15265	FINLAND RADIO FINLAND Pori +RADIO FINLAND Pori RADIO FINLAND Pori PORTUGAL RADIO PORTUGUESA Lisbon-São Gabriel USA AFRTS-US MILITARY Via Ismaning, GFR VOICE OF AMERICA Greenville, NC VOICE OF AMERICA Via Philippines USSR RADIO MOSCOW/RP&P Kenga RADIO MOSCOW/RP&P Serpukhov RADIO TIKHIY OKEAN Kenga	100kW::WEU/WAF (D):250kW::EU/AF (J):250kW::WAF/SA M-F:100kW::WEU/WAF Sa:100kW::WEU/WAF Su:100kW::WEU/WAF M-F:100kW::AF Sa/Su:100kW::AF 100kW::DS-ABC/CBS/NBC/NPR:ME 500kW::CA (J):250kW::SAS 500kW::SAS 500kW::WS:SAS 240kW::SAS/SEA 500kW::MARINERS:SAS Sa:500kW::MARINERS:SAS Su-F:500kW::MARINERS:SAS																							
15270	CHINA (TAIWAN) VOICE FREE CHINA T'ai-pei ECUADOR HCJB-VO THE ANDES Quito RADIO NACIONAL Quito GERMANY (FR) DEUTSCHE WELLE Via Kigali, Rwanda SOUTH AFRICA RADIO RSA Meyerton Alternative Frequency to 9585kHz UNITED KINGDOM BBC Woofferton USA VOICE OF AMERICA Via Tangier, Morocco	100kW::SEA 500kW::EU Sa/Su:500kW::EU M-F:500kW::EU 250kW::WAF/CA 250kW::WEU/WUSSR 250kW::WUSSR Su:250kW::WUSSR (J):100kW::WUSSR																							
15275	GERMANY (FR) DEUTSCHE WELLE Jülich	100kW::AF 100kW::NAF/ME 100kW::ME																							
(con'd)																									

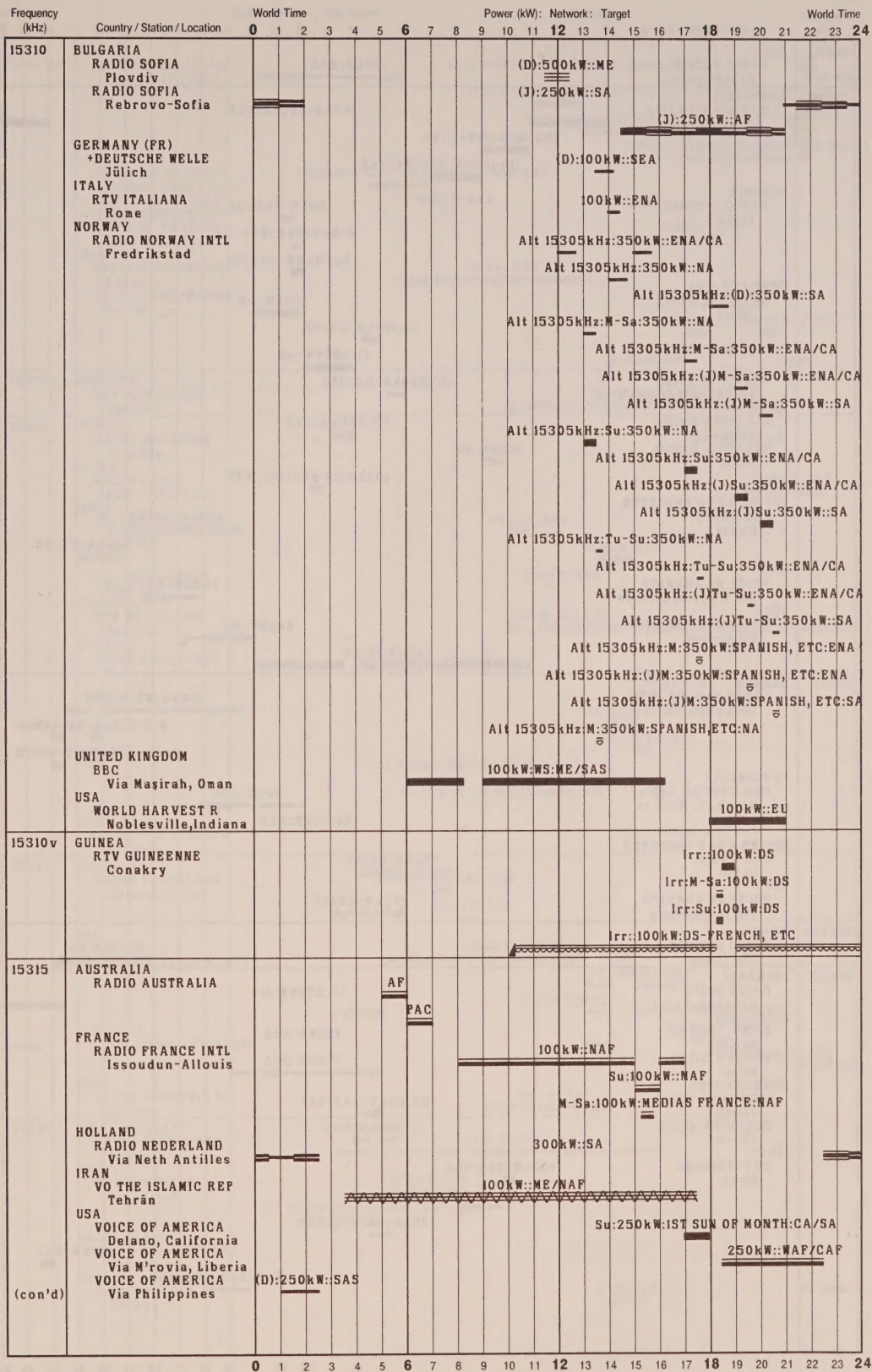


ENGLISH ■■■ GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / اعراب ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 0000 JAPANESE / 日本語 ■■■ MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL

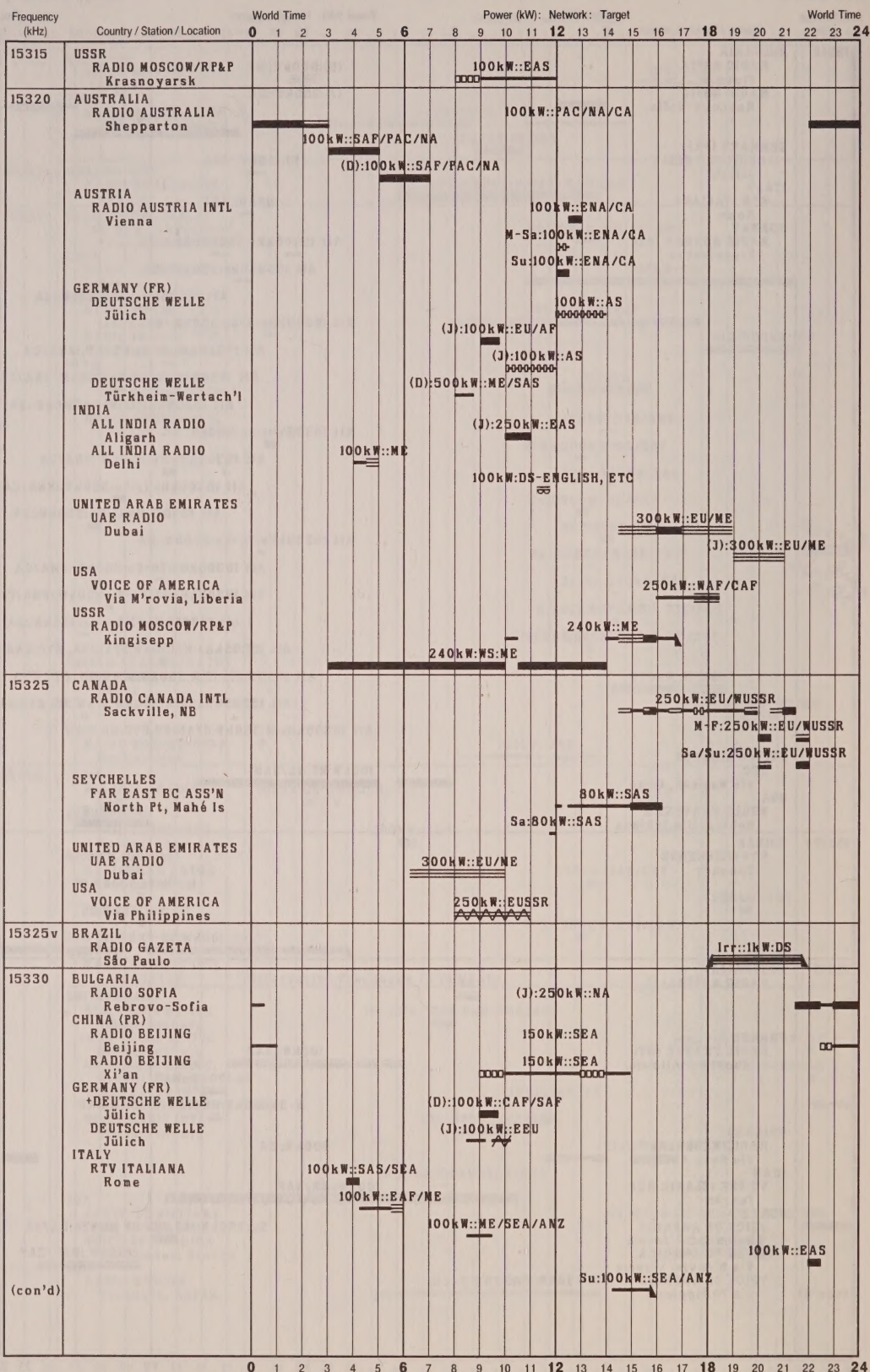
ARABIC /  RUSSIAN / РУССКИЙ  CHINESE / 中文  JAPANESE / 日本語  MULTILINGUAL  OTHER 

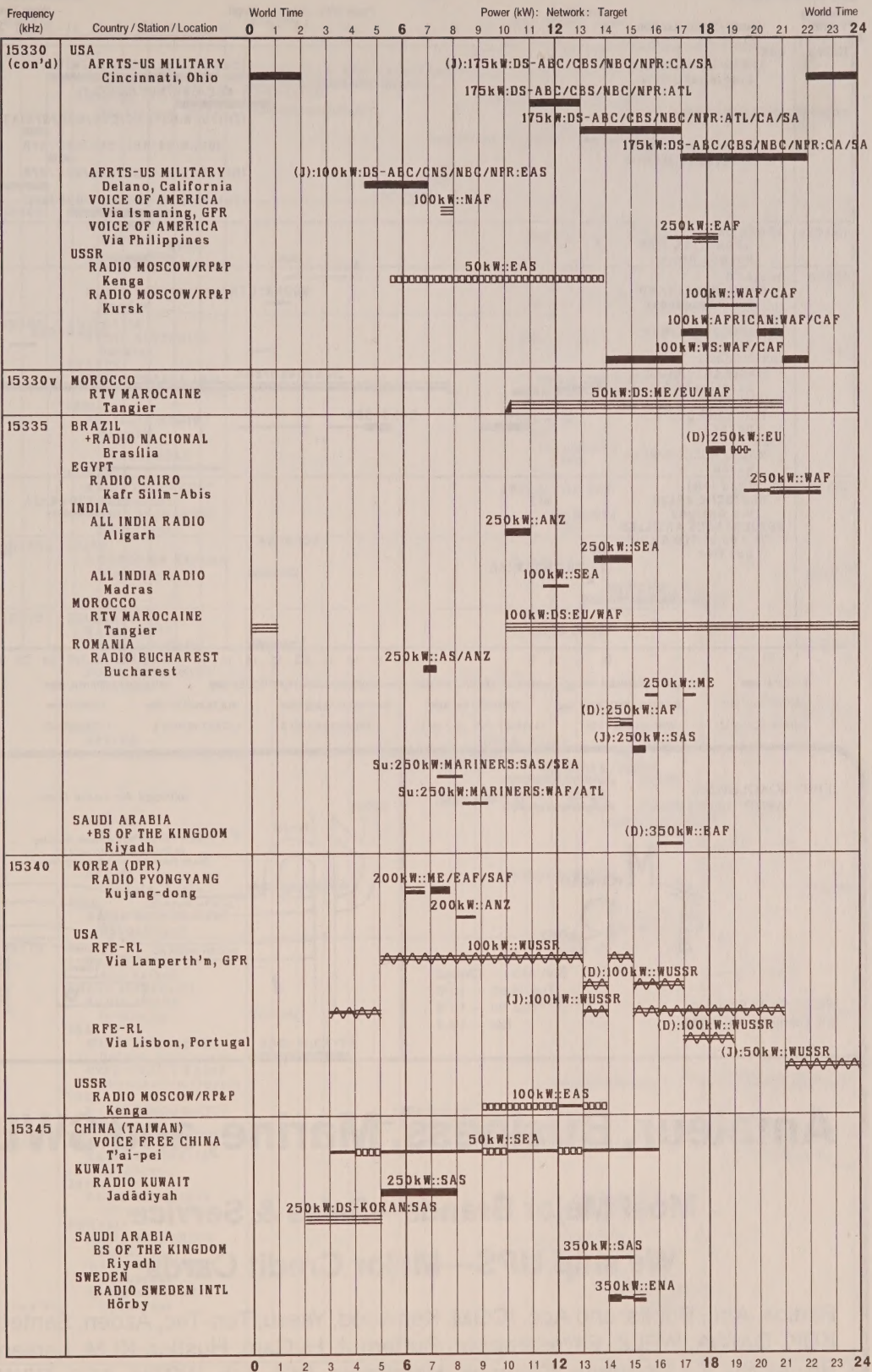
SUMMER ONLY (J)  WINTER ONLY (D)  JAMMING  or  or  EARLIEST HEARD  LATEST HEARD  + TENTATIVE 



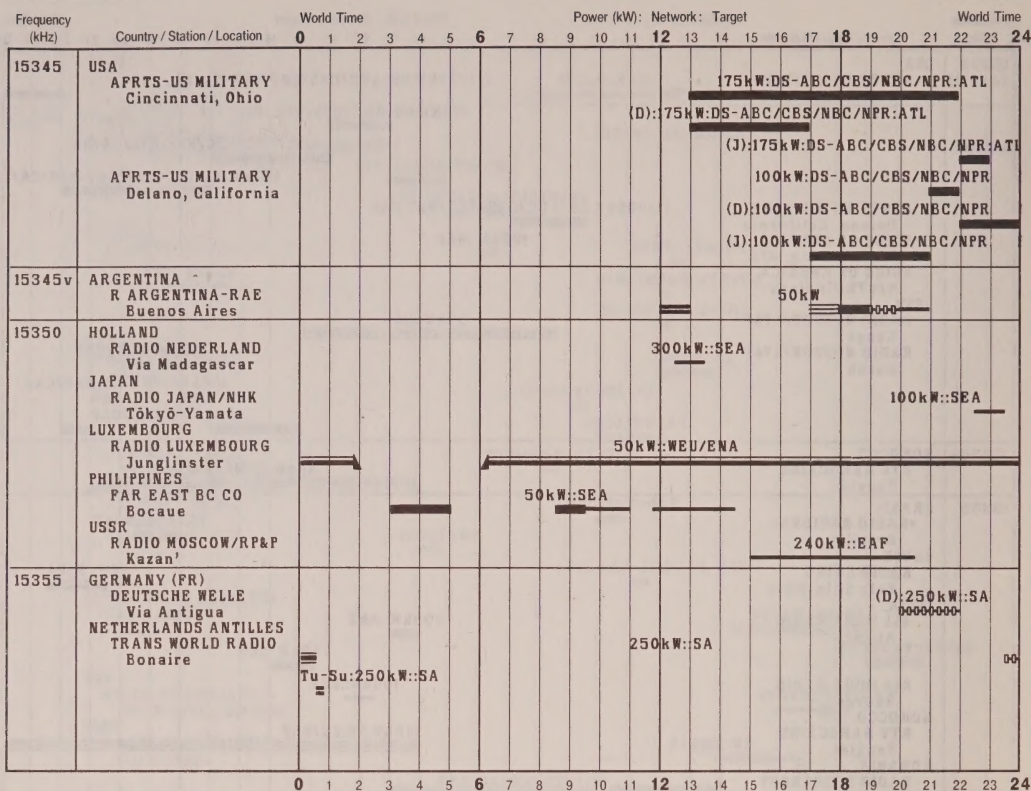
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ENGLISH ■ GERMAN / DEUTSCH ■■■ FRENCH / FRANÇAIS ■ PORTUGUESE / PORTUGUÊS ■ SPANISH / ESPAÑOL ■
 ARABIC / اعراس ■ RUSSIAN / РУССКИЙ ■ CHINESE / 中文 ■ JAPANESE / 日本語 ■ MULTILINGUAL ■ OTHER ■
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE





ENGLISH ■■■ GERMAN / DEUTSCH ○○○ FRENCH / FRANÇAIS ≡ PORTUGUESE / PORTUGUÊS ≡ SPANISH / ESPAÑOL ≡
 ARABIC / اعراس ≡ RUSSIAN / РУССКИЙ ≡ CHINESE / 中文 ○○○ JAPANESE / 日本語 ≡ MULTILINGUAL ≡ OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / اعراب — RUSSIAN / РУССКИЙ — CHINESE / 中文 — JAPANESE / 日本語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

JERRY SOKOLOWSKI
WBMR

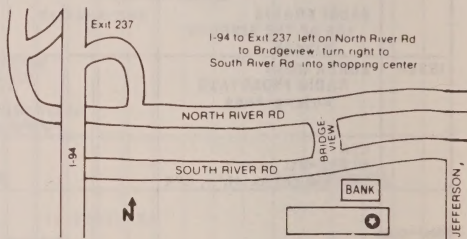
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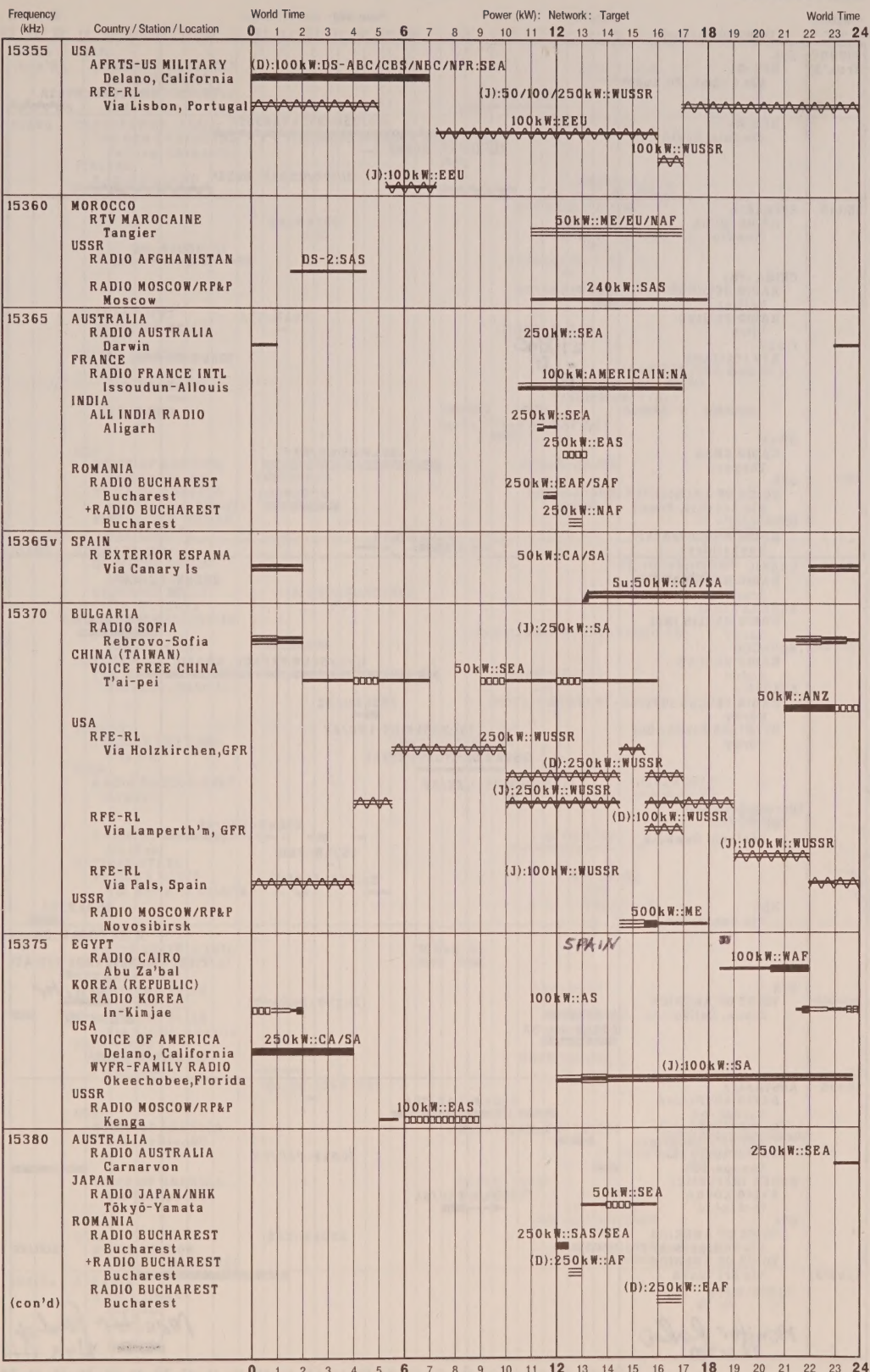


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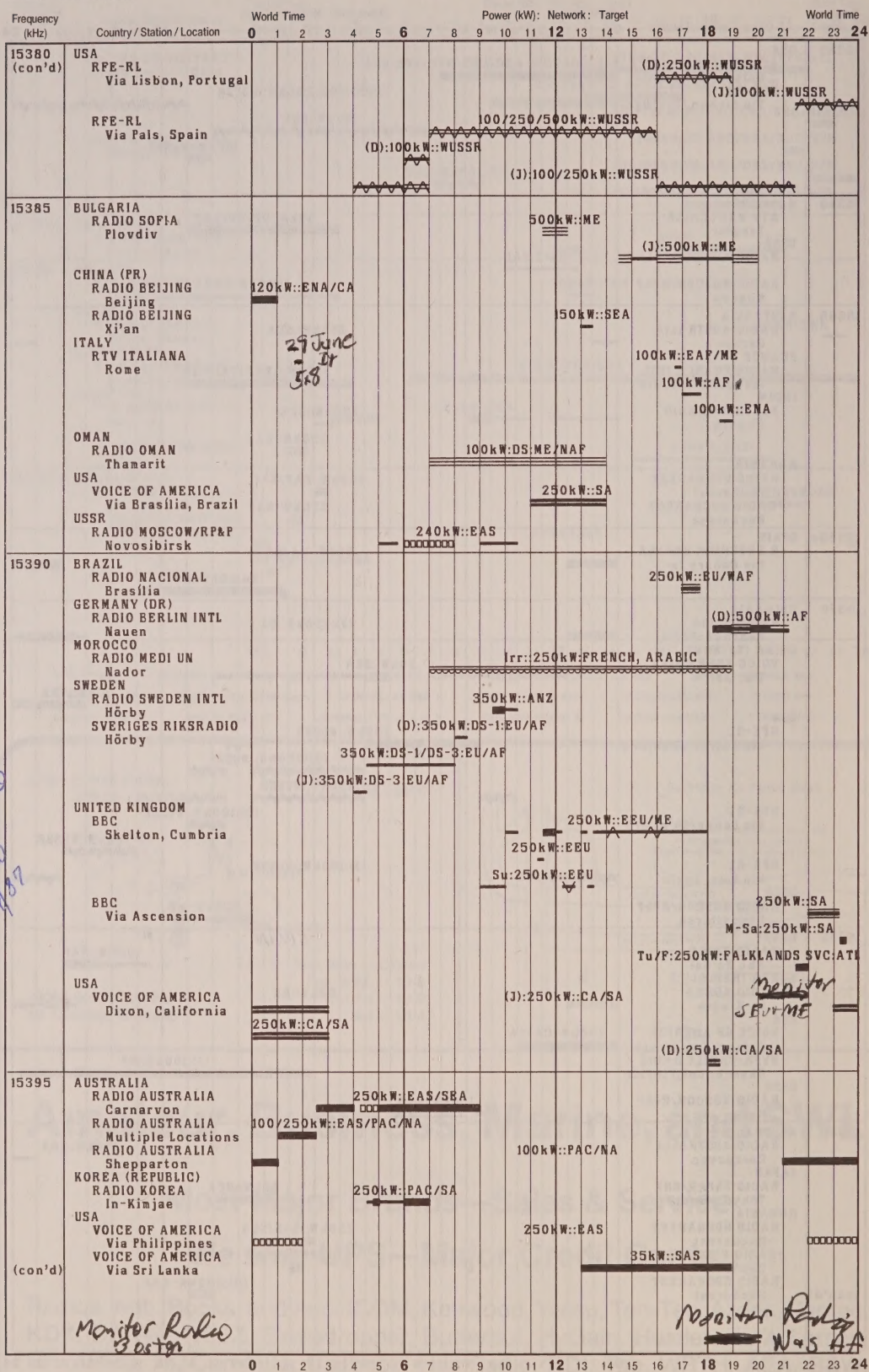
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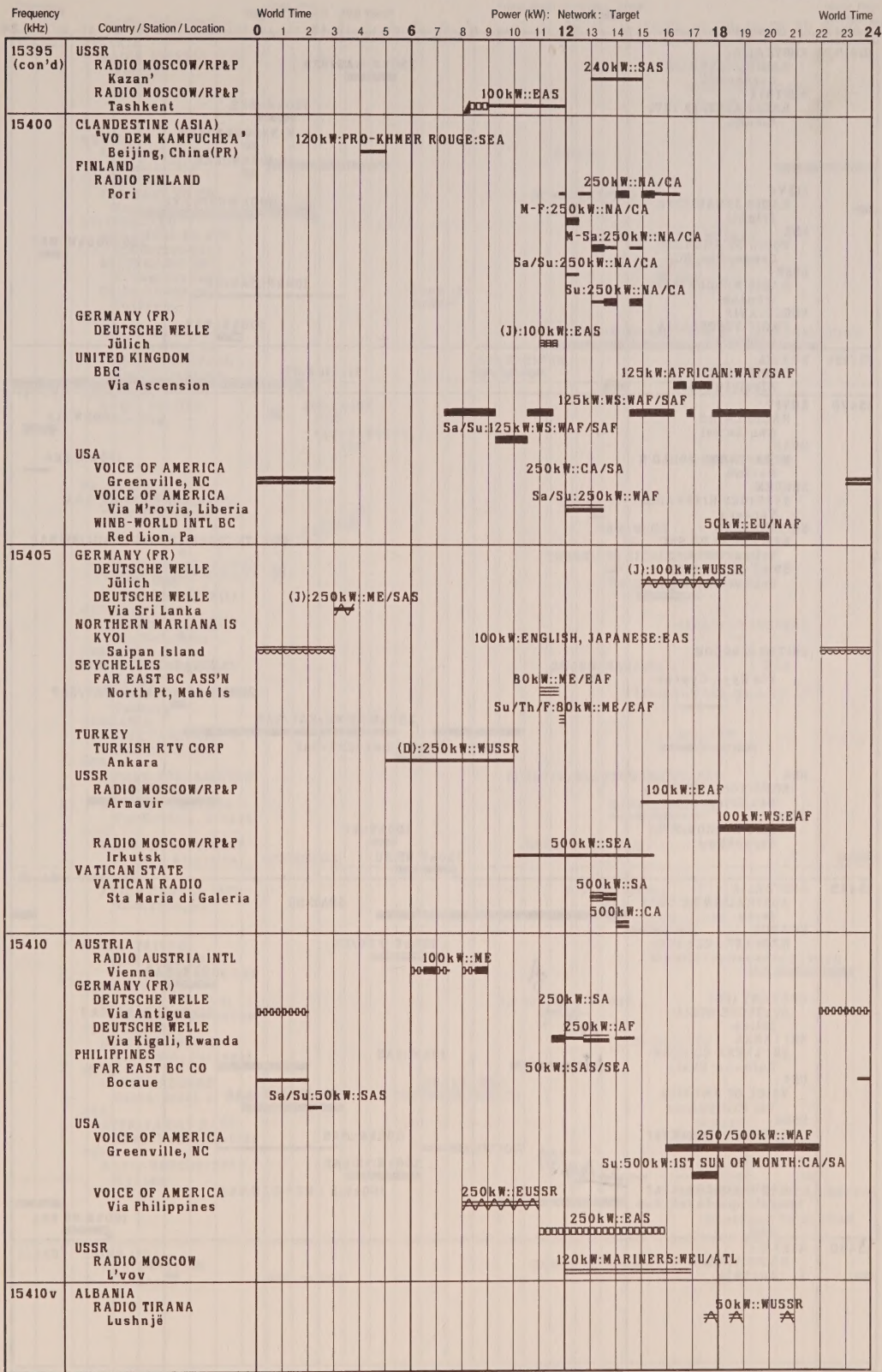
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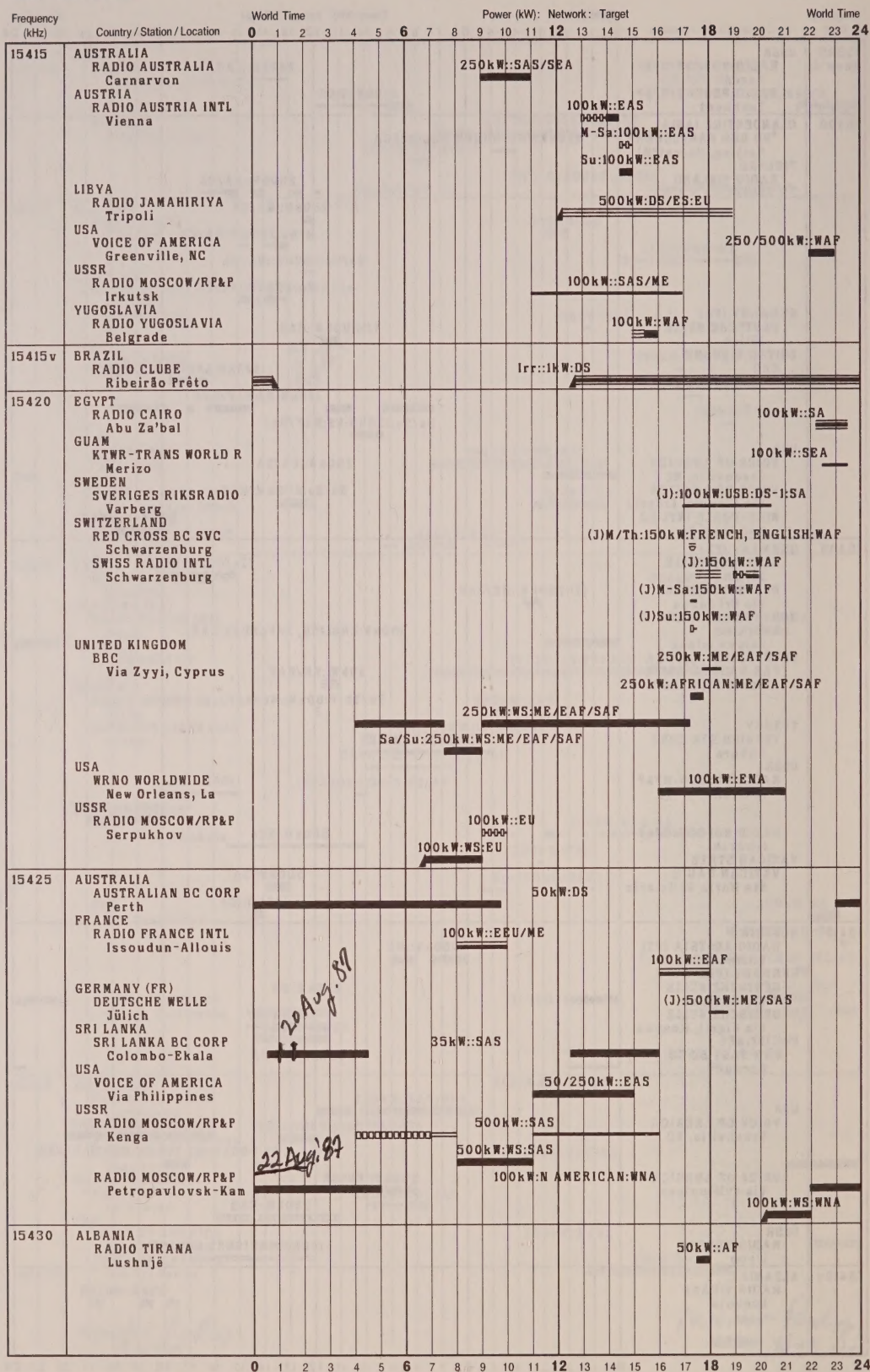


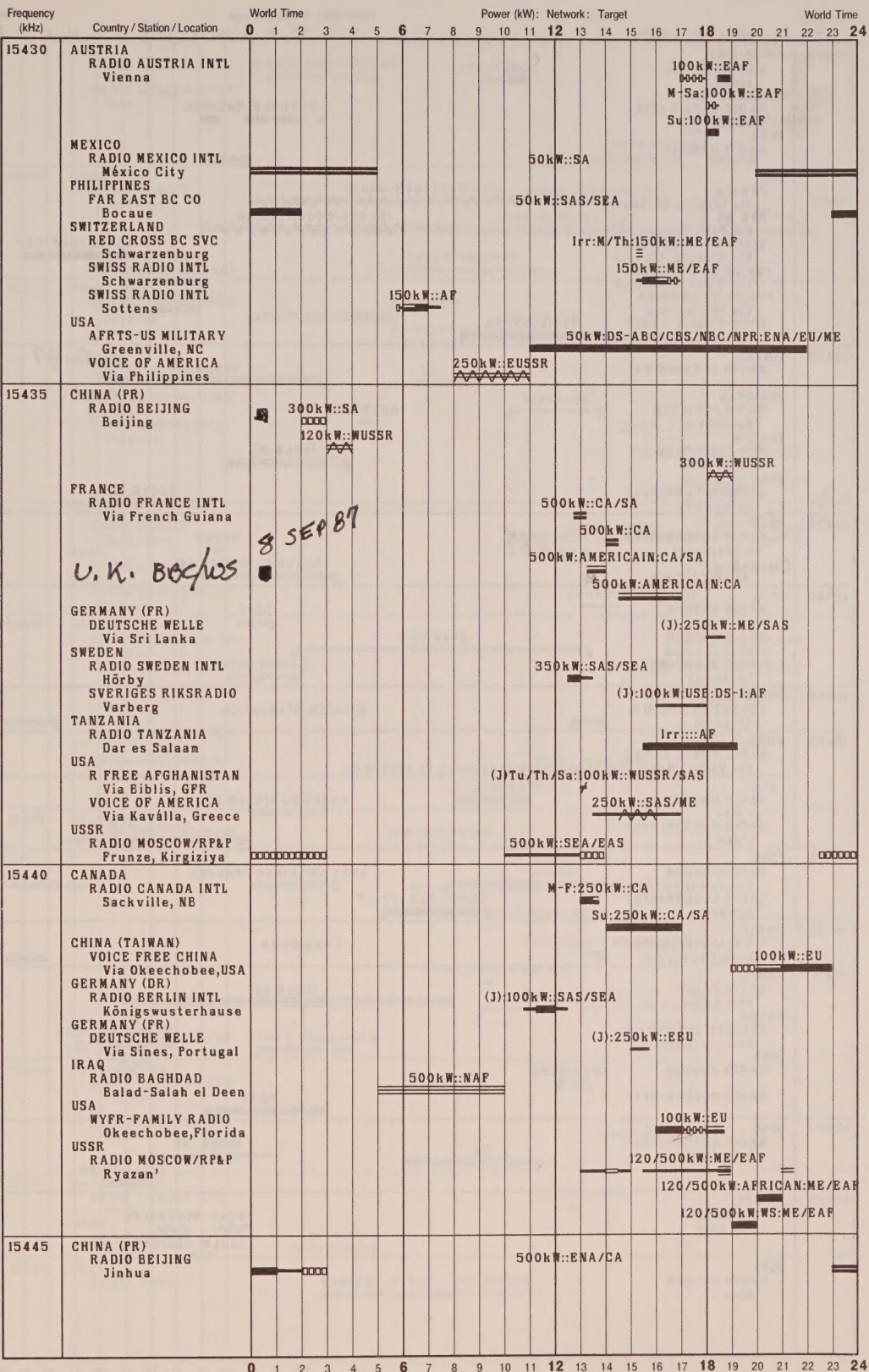
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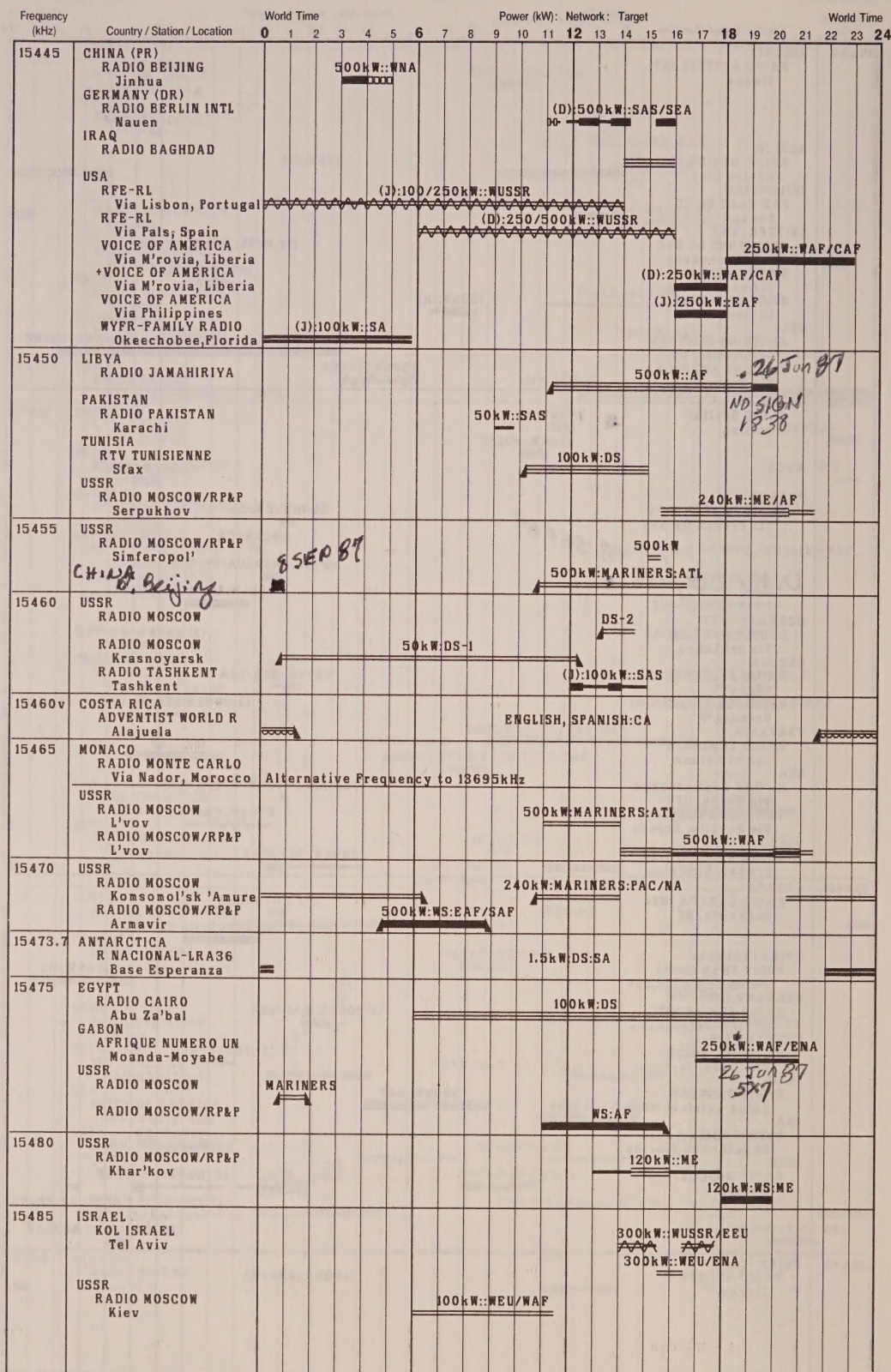
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD + TENTATIVE











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ENGLISH

GERMAN / DEUTSCH

FRENCH / FRANÇAIS

PORTUGUESE / PORTUGUÊS

SPANISH / ESPAÑOL

ARABIC / اعراب

RUSSIAN / РУССКИЙ

CHINESE / 中文

JAPANESE / 日本語

MULTILINGUAL

OTHER

SUMMER ONLY (J)

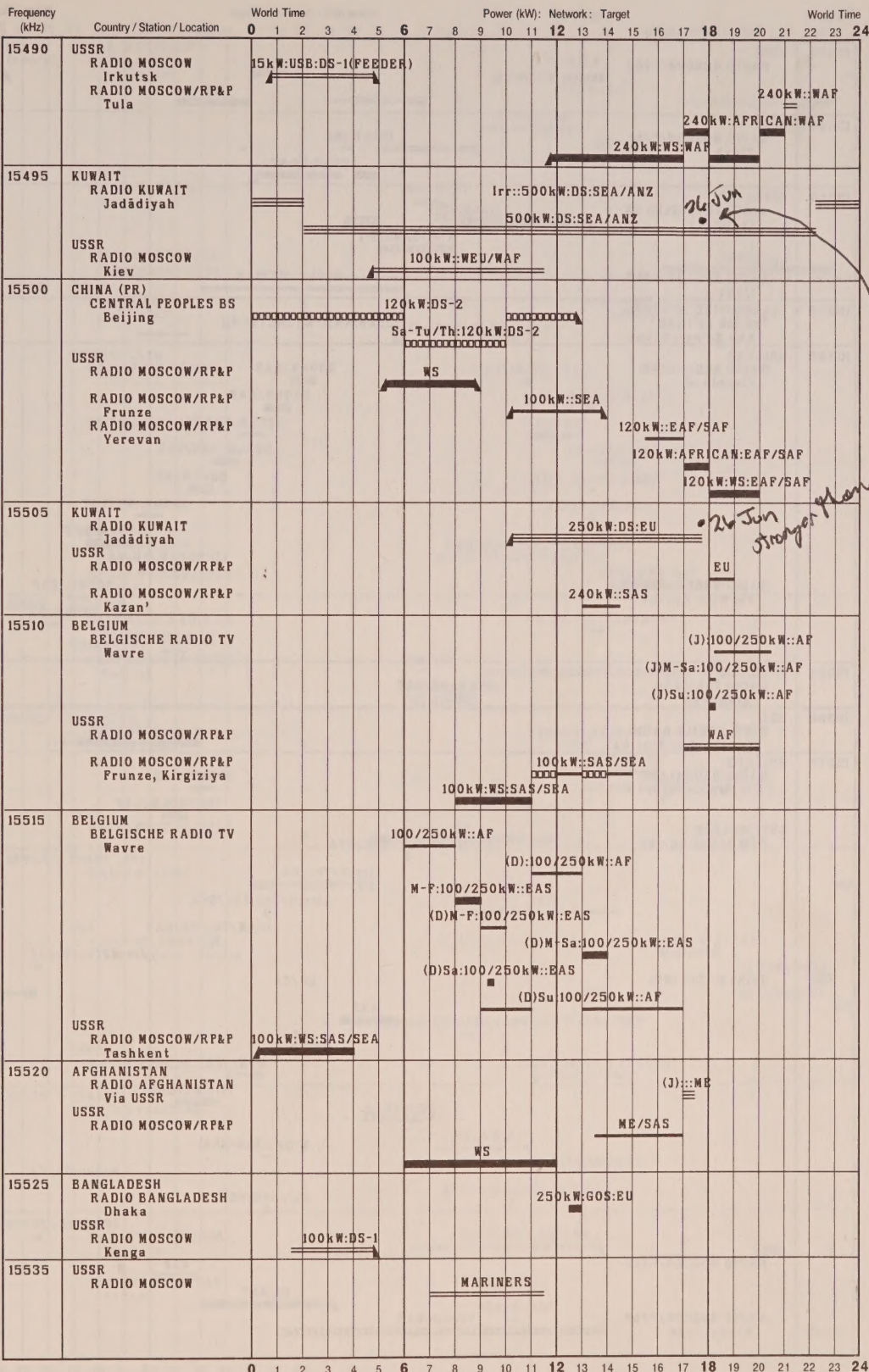
WINTER ONLY (D)

JAMMING / \ / or / or \

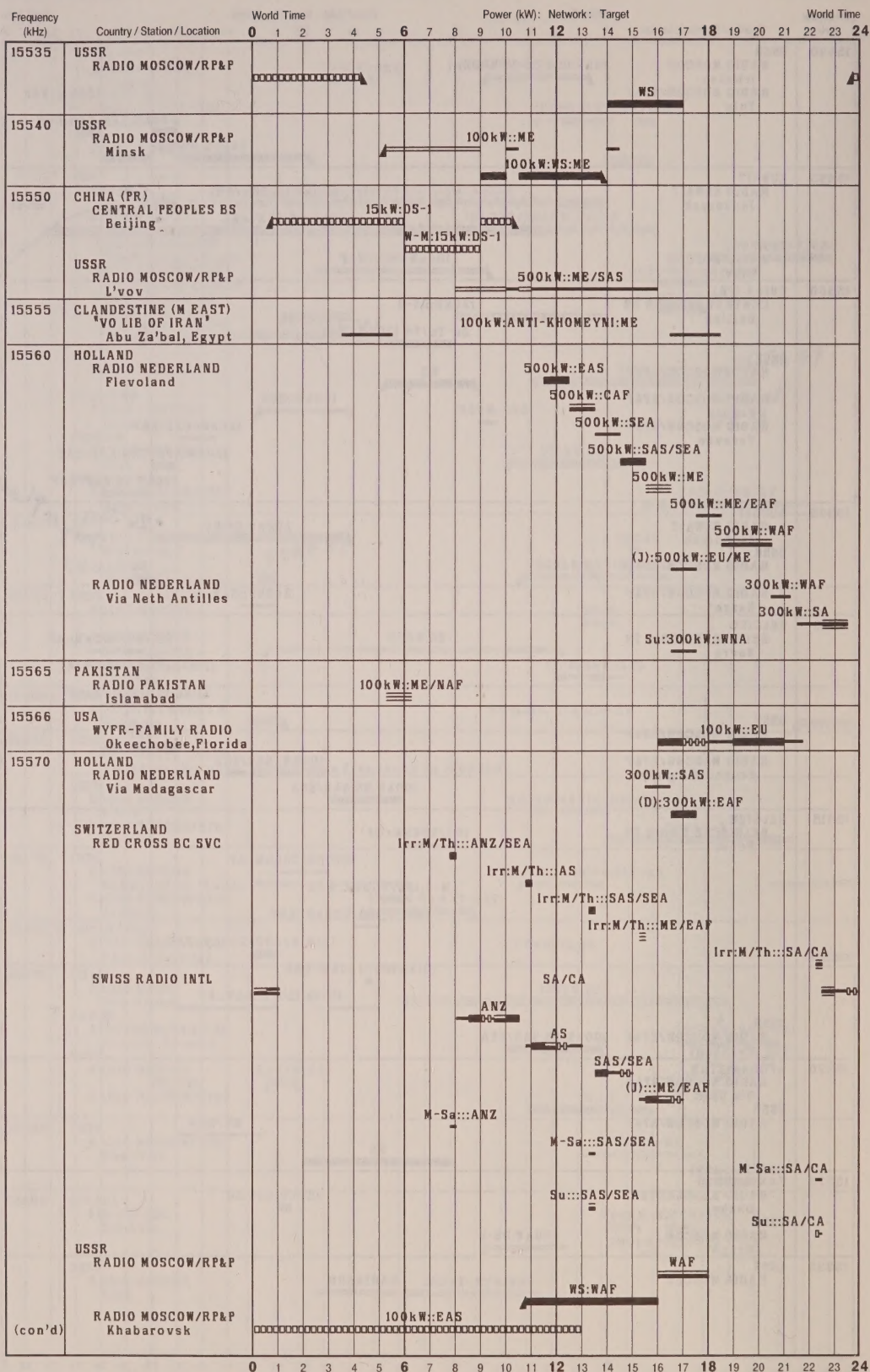
EARLIEST HEARD

LATEST HEARD

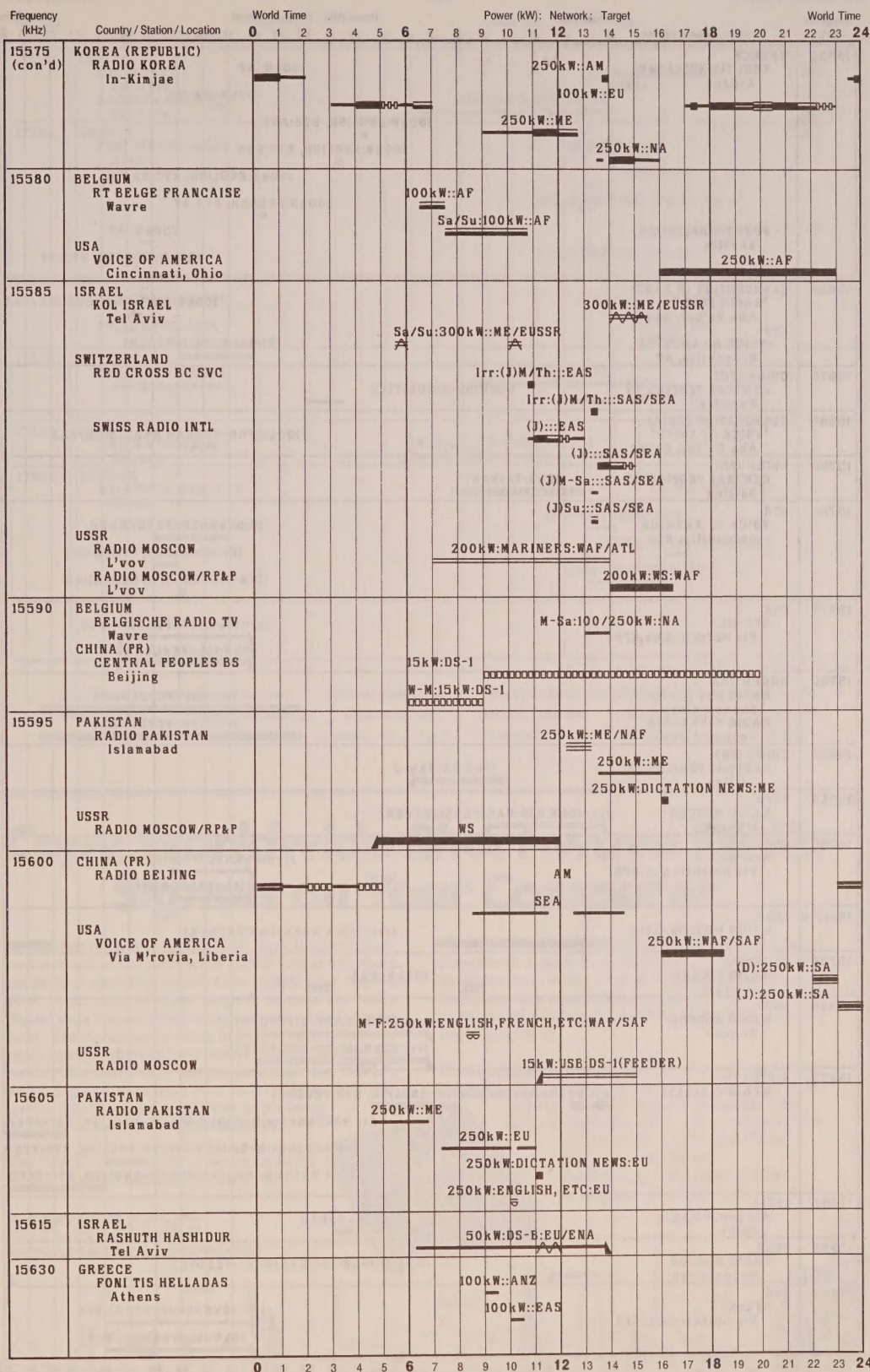
+ TENTATIVE



ENGLISH ■ GERMAN / DEUTSCH ■■■ FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / اعراب ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 ■■■ JAPANESE / 日本語 ■■■ MULTILINGUAL ■■■ OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE



ENGLISH [Symbol] GERMAN / DEUTSCH [Symbol] FRENCH / FRANÇAIS [Symbol] PORTUGUESE / PORTUGUÊS [Symbol] SPANISH / ESPAÑOL [Symbol]
 ARABIC / [Symbol] RUSSIAN / РУССКИЙ [Symbol] CHINESE / 中文 [Symbol] JAPANESE / 日本語 [Symbol] MULTILINGUAL [Symbol] OTHER [Symbol]
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD [Symbol] LATEST HEARD [Symbol] * TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or / or \ EARLIEST HEARD LATEST HEARD * TENTATIVE

ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
ARABIC / اَرَبِيْ	RUSSIAN / РУССКИЙ	CHINESE / 中文	JAPANESE / 日本語	MULTILINGUAL
SUMMER ONLY (J)	WINTER ONLY (D)	JAMMING	EARLIEST HEARD	LATEST HEARD
				+ TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
17555	ISRAEL KOL ISRAEL Tel Aviv RASHUTH HASHIDUR Tel Aviv																									
17565	GREECE FONI TIS HELLADAS Athens																									
17570	SWITZERLAND RED CROSS BC SVC SWISS RADIO INTL																									
17575	HOLLAND RADIO NEDERLAND Via Madagascar																									
17580	USSR RADIO MOSCOW Moscow																									
17590	BELGIUM BELGISCHE RADIO TV Wavre																									

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
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Copy Worldwide Short-wave Radio Signals on Your Computer

Remember the fun of tuning in all those foreign broadcast stations on the short-wave radio? Remember those mysterious sounding coded tone signals that baffled you? Well, most of those beeps & squeals are really digital data transmissions using radioteletype or Morse code. The signals are coming in from weather stations, news services, ships & ham radio operators all over the world. Our short-wave listener cartridge, the "SWL", will bring that data from your radio right to the video screen. You'll see the actual text as it's being sent from those far away transmitters.

The "SWL" contains the program in ROM as well as radio interface circuit to copy

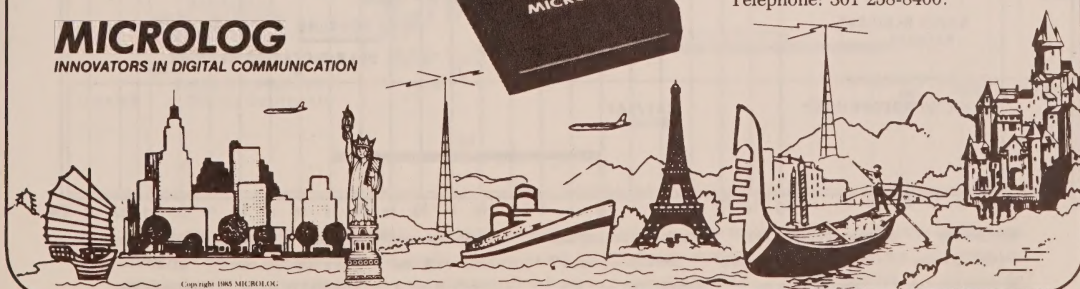
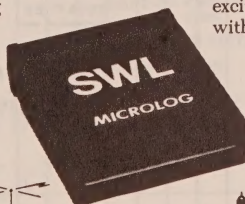
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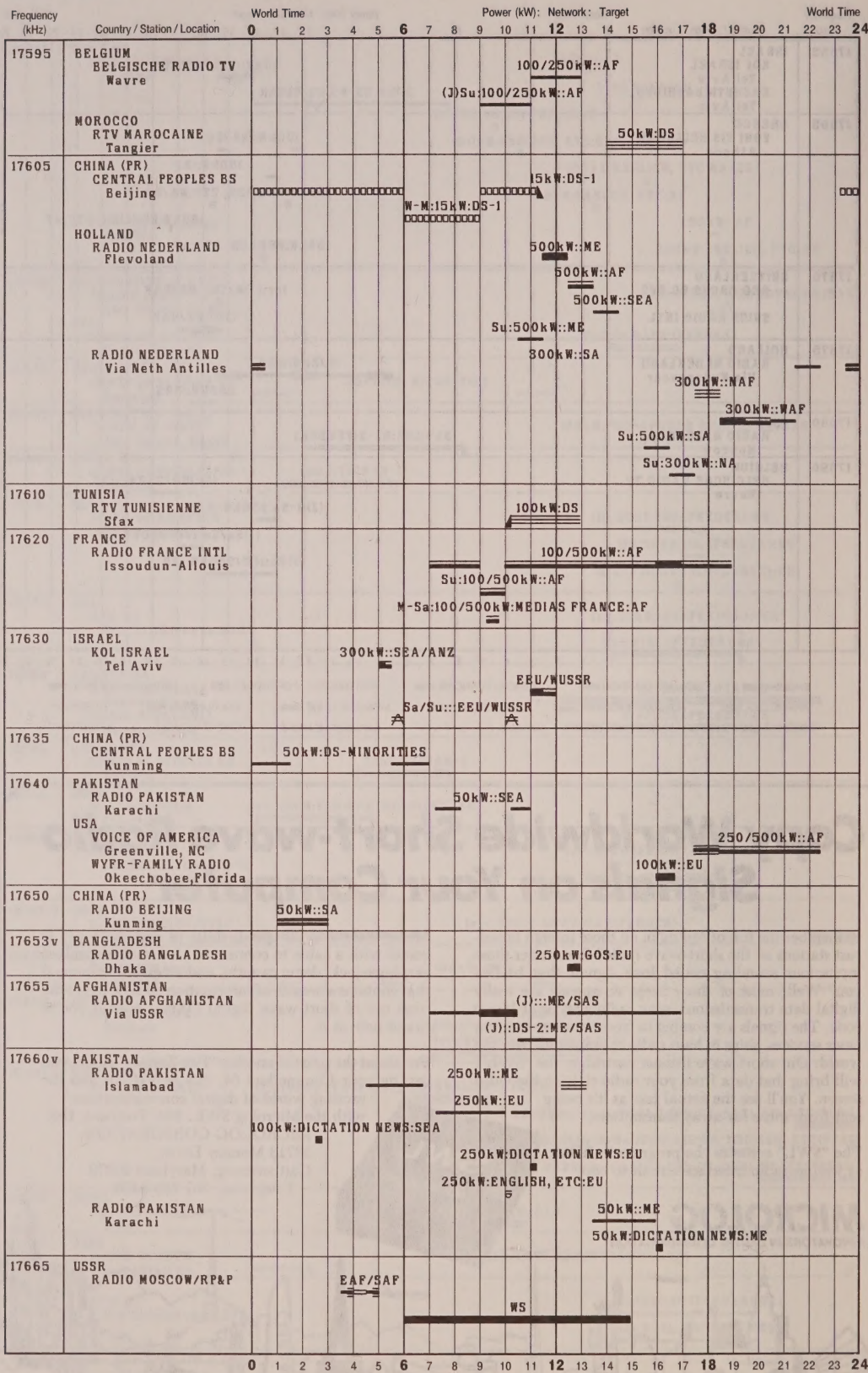
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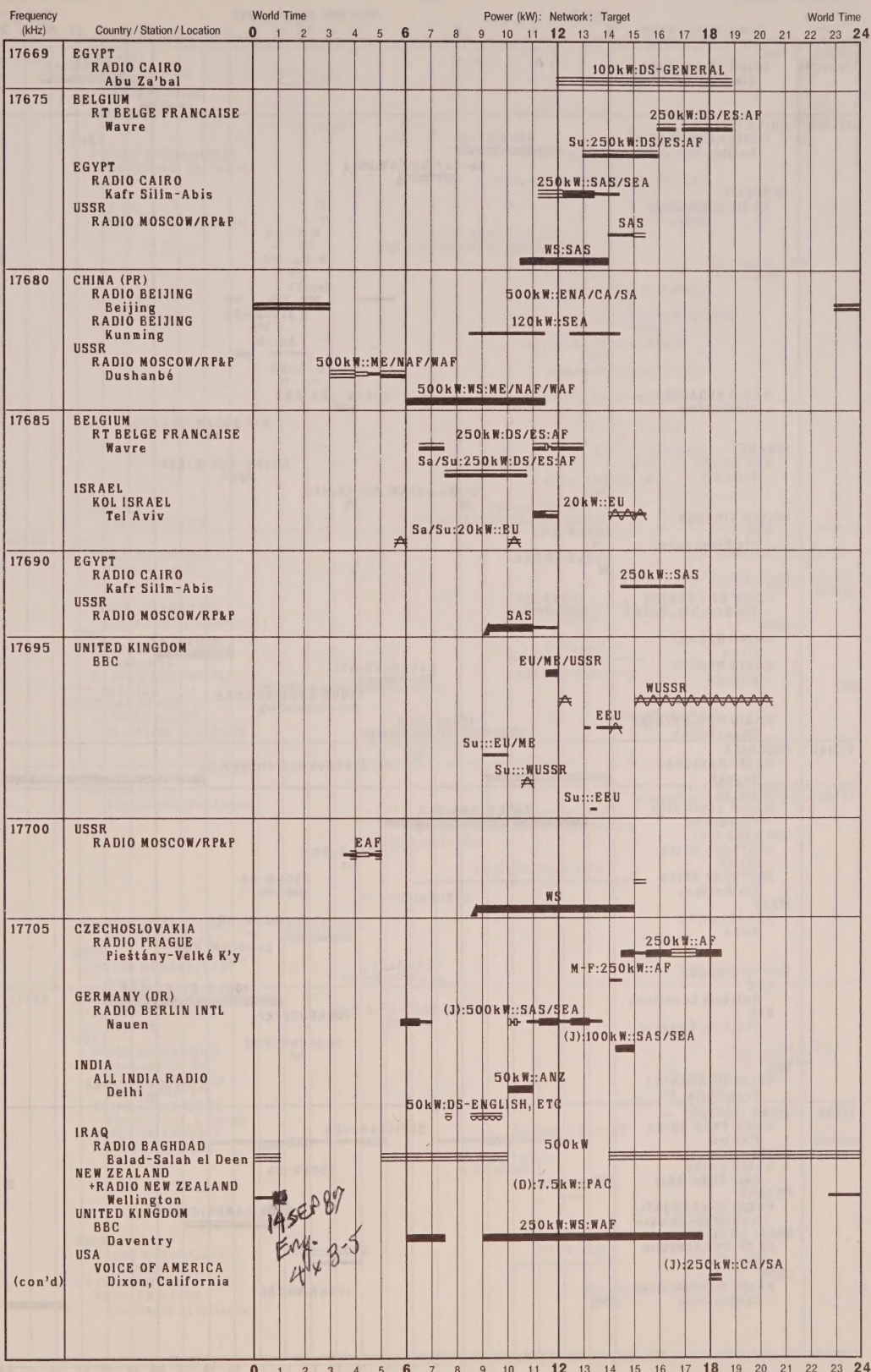
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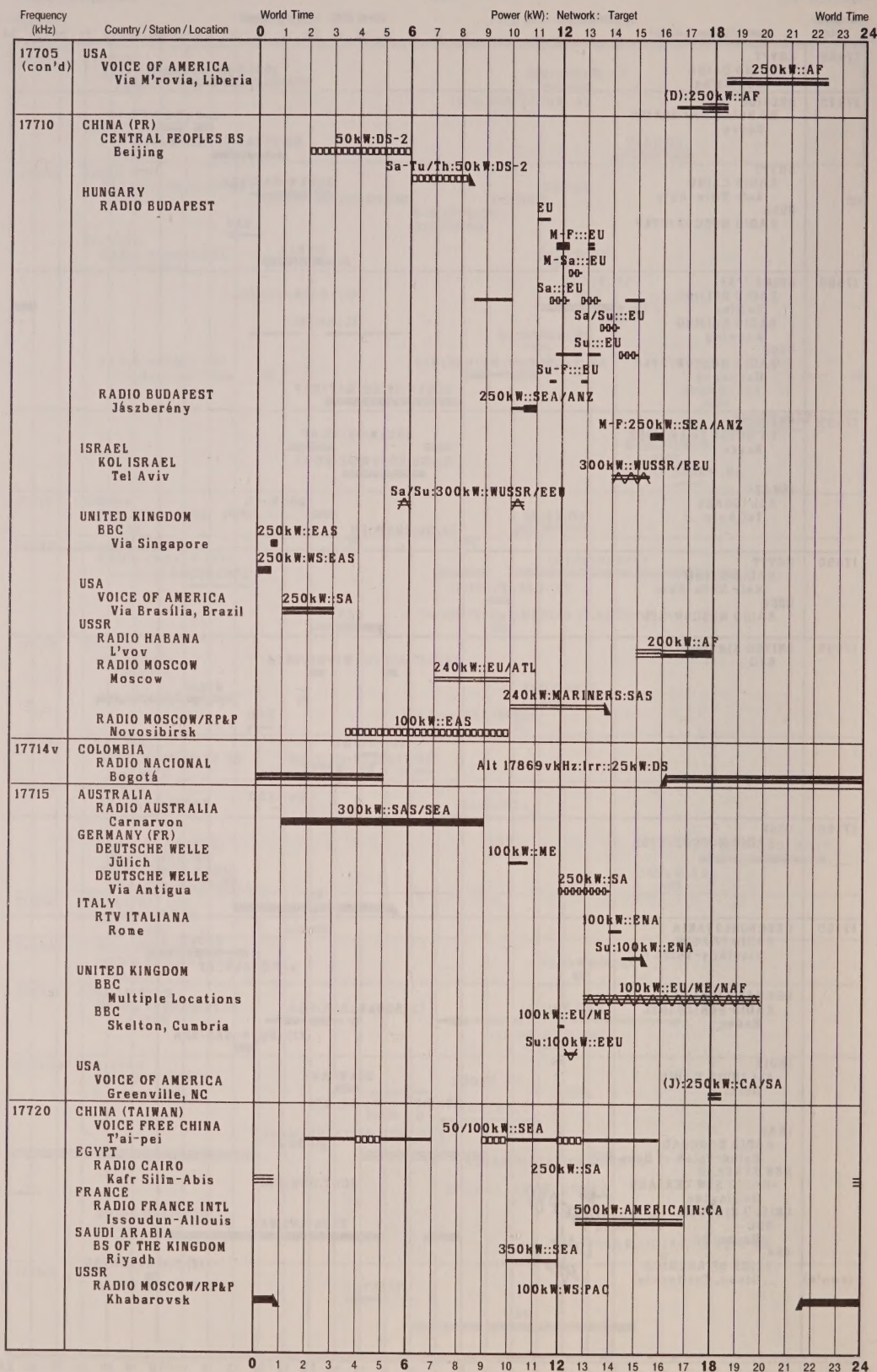


ENGLISH ■ GERMAN / DEUTSCH ■■■ FRENCH / FRANÇAIS ■ PORTUGUESE / PORTUGUÊS ■ SPANISH / ESPAÑOL ■
 ARABIC / اعراب ■ RUSSIAN / РУССКИЙ ■ CHINESE / 中文 ■ JAPANESE / 日本語 ■ MULTILINGUAL ■■■ OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



(con'd)

ENGLISH ■■■ GERMAN / DEUTSCH ■■■ FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / عَرَبِي ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文 ■■■ JAPANESE / 日本語 ■■■ MULTILINGUAL ■■■ OTHER ■■■
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ + TENTATIVE



ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / ٠٠٠٠ RUSSIAN / РУССКИЙ — CHINESE / 中 文 — JAPANESE / 日 本 語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

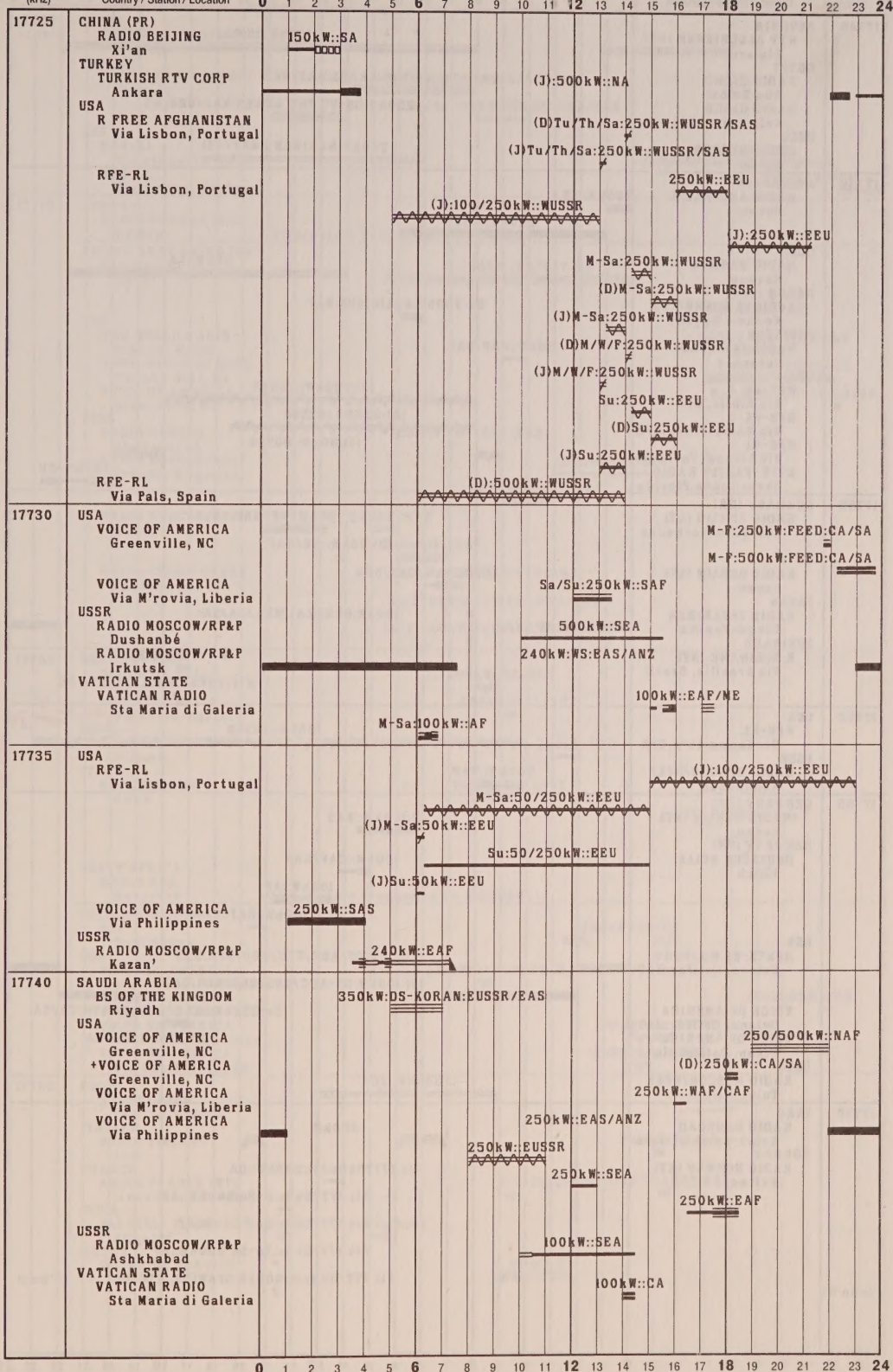
Frequency
(kHz)

Country / Station / Location

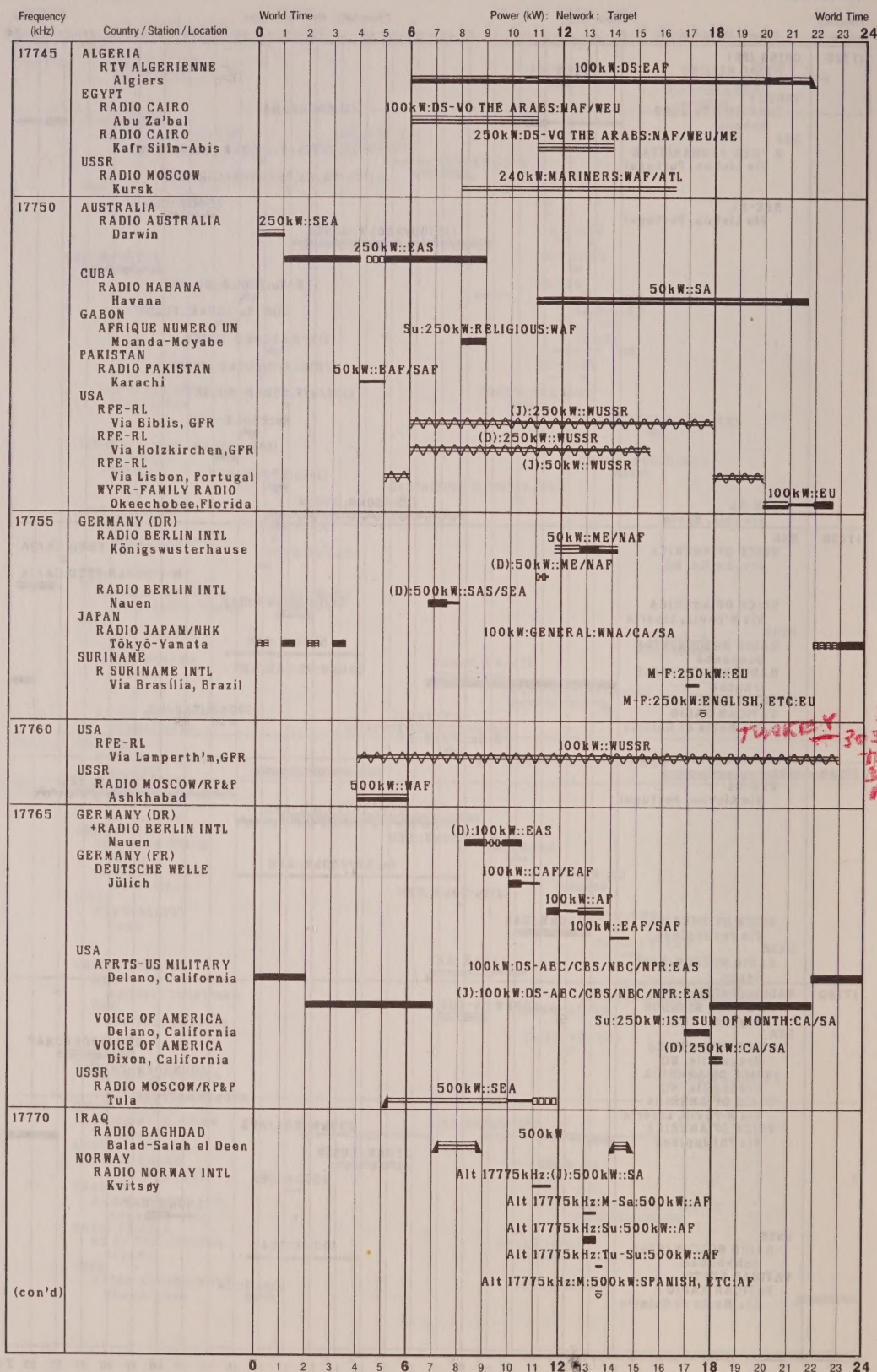
World Time

Power (kW): Network: Target

World Time

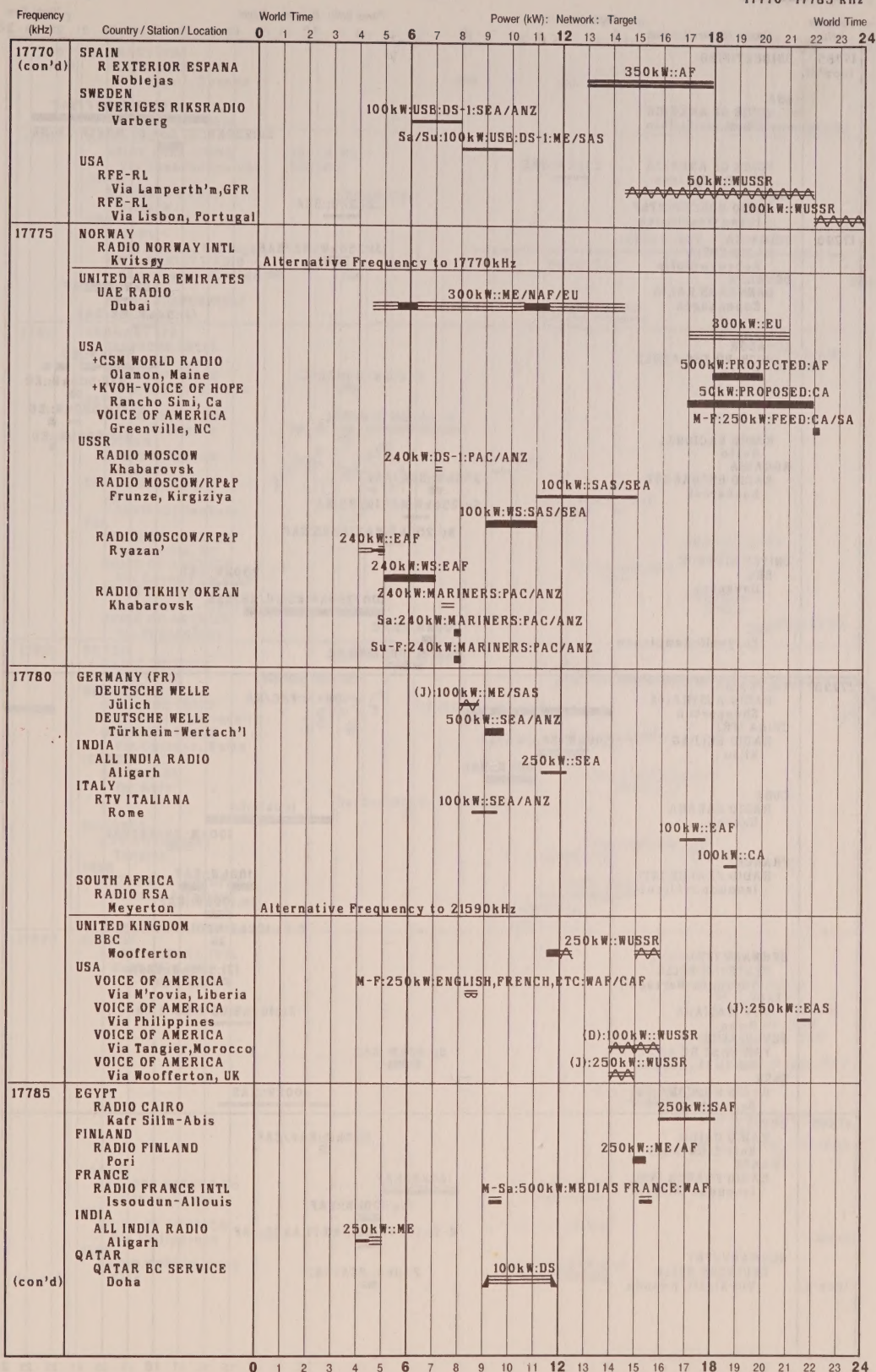


ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD LATEST HEARD + TENTATIVE



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

ENGLISH ■■■ GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / ٠٠٠ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中 文 ■■■ JAPANESE / 日 本 語 ■■■ MULTILINGUAL 0000 OTHER ■■■
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE

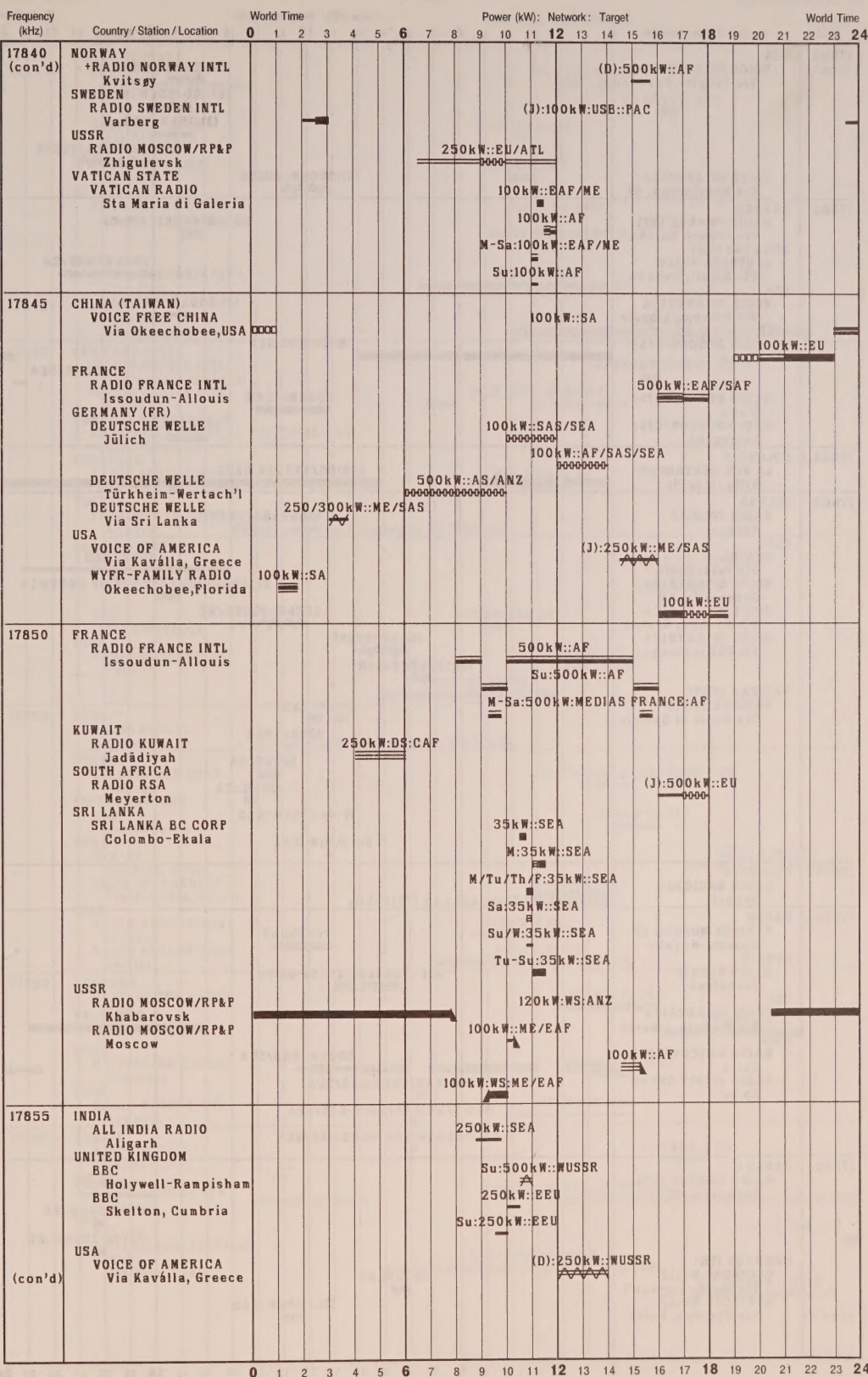


Frequency (kHz)	Country / Station / Location	World Time 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																					
17785 (con'd)	UNIDENTIFIED																						
	USA VOICE OF AMERICA Cincinnati, Ohio																						
	VOICE OF AMERICA Via Philippines																						
	USSR RADIO MOSCOW/RP&P Ivano-Frankovsk																						
17790	BULGARIA RADIO SOFIA Rebrovo-Sofia																						
	DENMARK DANMARKS RADIO Copenhagen																						
	ECUADOR HCJB-VO THE ANDES Quito																						
	RADIO NACIONAL Quito																						
	ROMANIA RADIO BUCHAREST Bucharest																						
	UNITED KINGDOM BBC Daventry																						
	BBC Holywell-Rampisham																						
17795	AUSTRALIA RADIO AUSTRALIA Shepparton																						
	CHINA (PR) RADIO BEIJING Xi'an																						
	CUBA RADIO HABANA Havana																						
	FRANCE RADIO FRANCE INTL Issoudun-Allouis																						
	GERMANY (FR) DEUTSCHE WELLE Türkheim-Wertach'l																						
	ITALY RTV ITALIANA Rome																						
	SEYCHELLES FAR EAST BC ASS'N North Pt, Mahé Is																						
	USSR RADIO MOSCOW/RP&P Serpukhov																						
17800	EGYPT RADIO CAIRO Kafr Sillm-Abis																						
	FRANCE RADIO FRANCE INTL Issoudun-Allouis																						
	GERMANY (PR) DEUTSCHE WELLE Via Kigali, Rwanda																						
(con'd)																							

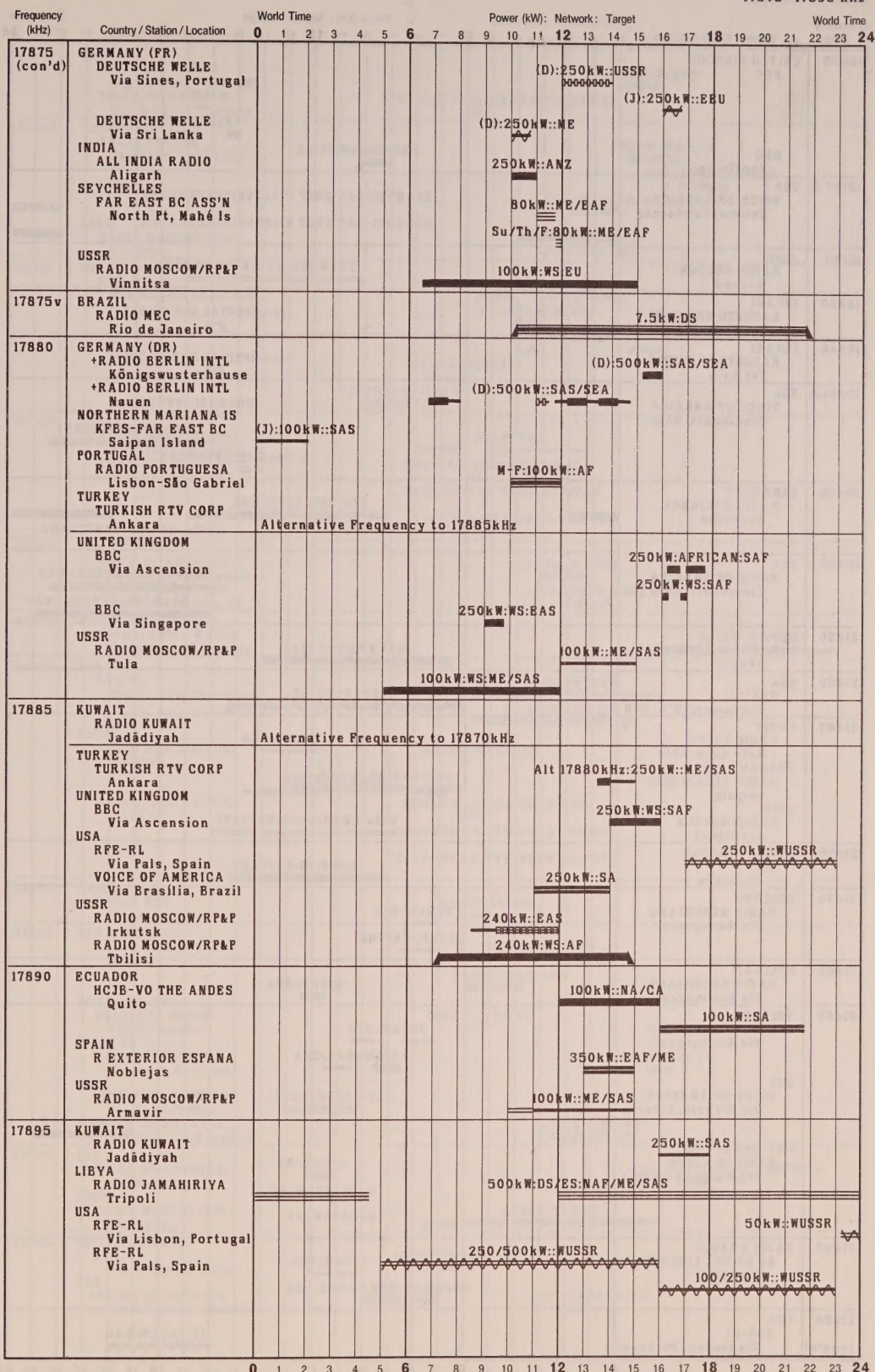
ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
ARABIC	RUSSIAN / РУССКИЙ	CHINESE	JAPANESE	MULTILINGUAL
SUMMER ONLY (3)	WINTER ONLY (1)	JAMMING	EARLIEST HEARD	LATEST HEARD
				+ TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time	Power (kW)	Network:	Target	World Time
		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24				
17820 (con'd)	USSR RADIO MOSCOW/RP&P Novosibirsk		250kW::EAS			
17825	BULGARIA RADIO SOFIA Rebrovo-Sofia GERMANY (FR) DEUTSCHE WELLE Jülich DEUTSCHE WELLE Türkheim-Wertach'l DEUTSCHE WELLE Via Sri Lanka JAPAN RADIO JAPAN/NHK Tokyo-Yamata UNITED KINGDOM BBC Skelton, Cumbria		250kW::ANZ 250/300kW::ME/SAS 200kW::WNA/CA/SA 23 Aug. 200g		(J):100kW::EAS 500kW::SEA (J):500kW::EAF/SAF 250kW::EEU Su:250kW::EEU	
17830	INDIA ALL INDIA RADIO Delhi SWITZERLAND RED CROSS BC SVC Schwarzenburg RED CROSS BC SVC Sottens SWISS RADIO INTL Schwarzenburg SWISS RADIO INTL Sottens UNITED ARAB EMIRATES UAE RADIO Dubai UNITED KINGDOM BBC Via Ascension USA +VOICE OF AMERICA Greenville, NC VOICE OF AMERICA Greenville, NC VOICE OF AMERICA Via Ascension VOICE OF AMERICA Via Kavalla, Greece USSR RADIO MOSCOW/RP&P		100kW::SEA Irr:(J)M/Th:150kW::SEA/ANZ Irr:(J)M/Th:150kW::SAS/SEA Irr:(J)M/Th:500kW::ME/EAF Irr:(J)M/Th:500kW::FRENCH, ENGLISH:ME (J):150kW::SEA (J):150kW::SAS/SEA (J)M+Sa:150kW::SAS/SEA (J)Su:150kW::SAS/SEA (J):500kW::ME/EAF (J)M+Sa:500kW::ME/EAF (J)Su:500kW::ME/EAF 300kW::EAS 250kW::SA 250kW::EAF Su:500kW::1ST SUN OF MONTH:CA/SA 250kW::SA (D):250kW::SA (J):250kW::SA (J):250kW::ME/SAS SAS			
17835	USA RFE-RL Via Lisbon, Portugal USSR RADIO MOSCOW/RP&P Chita RADIO MOSCOW/RP&P Vinnitsa		500kW::WS:SEA 240kW::WS:SAS/SEA 240kW::SAS/SEA		100/250kW::EEU	
17840 (con'd)	CZECHOSLOVAKIA RADIO PRAGUE Piešťany-Velké K'y		250kW::SEA/ANZ M-F:250kW::NE Sa/Su:250kW::SEA/ANZ		(J):250kW::AF M-F:250kW::SAS	

ENGLISH ■■■ GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS ■■■ PORTUGUESE / PORTUGUÊS ■■■ SPANISH / ESPAÑOL ■■■
 ARABIC / اَرَبِيّ ■■■ RUSSIAN / РУССКИЙ ■■■ CHINESE / 中文字符 ■■■ JAPANESE / 日本語 ■■■ MULTILINGUAL ■■■ OTHER ■■■
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING ^/\ or / or \ EARLIEST HEARD ▲ LATEST HEARD ▼ TENTATIVE ◆



ENGLISH — GERMAN / DEUTSCH 0000 FRENCH / FRANÇAIS — PORTUGUESE / PORTUGUÊS — SPANISH / ESPAÑOL —
 ARABIC / عَرَبِيّ — RUSSIAN / РУССКИЙ — CHINESE / 中文 — JAPANESE / 日本語 — MULTILINGUAL 0000 OTHER —
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or \ / EARLIEST HEARD ▲ LATEST HEARD ▼ * TENTATIVE



Frequency (kHz)	Country / Station / Location	World Time												Power (kW): Network: Target												World Time											
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
18080	UNITED KINGDOM BBC																																				
	BBC Woofferton																																				
18137.5	USA VOICE OF AMERICA Delano, California																																				
18195	USSR RADIO MOSCOW Moscow																																				
18290	ISRAEL RASHUTH HASHIDUR Tel Aviv																																				
18946	ISRAEL RASHUTH HASHIDUR Tel Aviv																																				
19261.5	USA VOICE OF AMERICA Cincinnati, Ohio																																				
19470	PARAGUAY RADIO NACIONAL Asunción																																				
19480	USA VOICE OF AMERICA Cincinnati, Ohio																																				
21450	USSR RADIO MOSCOW/RP&P Armavir																																				
21455	USA RFE-RL Via Lamperth'm, GFR																																				
21465	EGYPT RADIO CAIRO Kafir Sillm-Abis GERMANY (DR) RADIO BERLIN INTL Leipzig USSR RADIO MOSCOW Leningrad																																				
21470	UNITED KINGDOM BBC Daventry																																				
21475	HOLLAND RADIO NEDERLAND Via Madagascar																																				
21480	HOLLAND RADIO NEDERLAND Via Madagascar																																				
21485	HOLLAND RADIO NEDERLAND Via Madagascar USA VOICE OF AMERICA Via M'rovina, Liberia VATICAN STATE VATICAN RADIO Sta Maria di Galeria																																				
21495	SAUDI ARABIA BS OF THE KINGDOM Riyadh																																				
21500	USA RFE-RL (con'd) Via Lisbon, Portugal																																				

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or \ / EARLIEST HEARD LATEST HEARD * TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time												World Time												
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
21500 (con'd)	USA RFE-RL Via Lisbon, Portugal VOICE OF AMERICA Via M'rovia, Liberia																									
21505	CZECHOSLOVAKIA RADIO PRAGUE Piešťany-Velké K'y																									
	USSR RADIO MOSCOW/RP&P Yerevan																									
21510	USA RFE-RL Via Holzkirchen,GFR																									
	RFE-RL Via Lisbon, Portugal																									
21515	USSR RADIO MOSCOW/RP&P Frunze, Kirgiziya RADIO TIKHIY OKEAN Frunze, Kirgiziya																									
21520	USA VOICE OF AMERICA Via Kavála, Greece VOICE OF AMERICA Via Woofferton, UK																									
21525	USA WYFR-FAMILY RADIO Okeechobee,Florida																									
21530	USA RFE-RL Via Lisbon, Portugal																									
	USSR RADIO MOSCOW/RP&P Irkutsk																									
	RADIO TIKHIY OKEAN Irkutsk																									
21535	SOUTH AFRICA RADIO RSA Meyerton																									
21540	GERMANY (DR) RADIO BERLIN INTL Nauen																									
	GERMANY (FR) DEUTSCHE WELLE Via Sri Lanka																									
	HOLLAND RADIO NEDERLAND Via Neth Antilles																									
	USA VOICE OF AMERICA Via Philippines VOICE OF AMERICA Via Tangier,Morocco																									
21545	USA VOICE OF AMERICA Greenville, NC																									
	USSR RADIO MOSCOW/RP&P Kingisepp																									
21550	UNITED KINGDOM BBC Via Maşirah, Oman																									
	USA +VOICE OF AMERICA Via M'rovia, Liberia																									

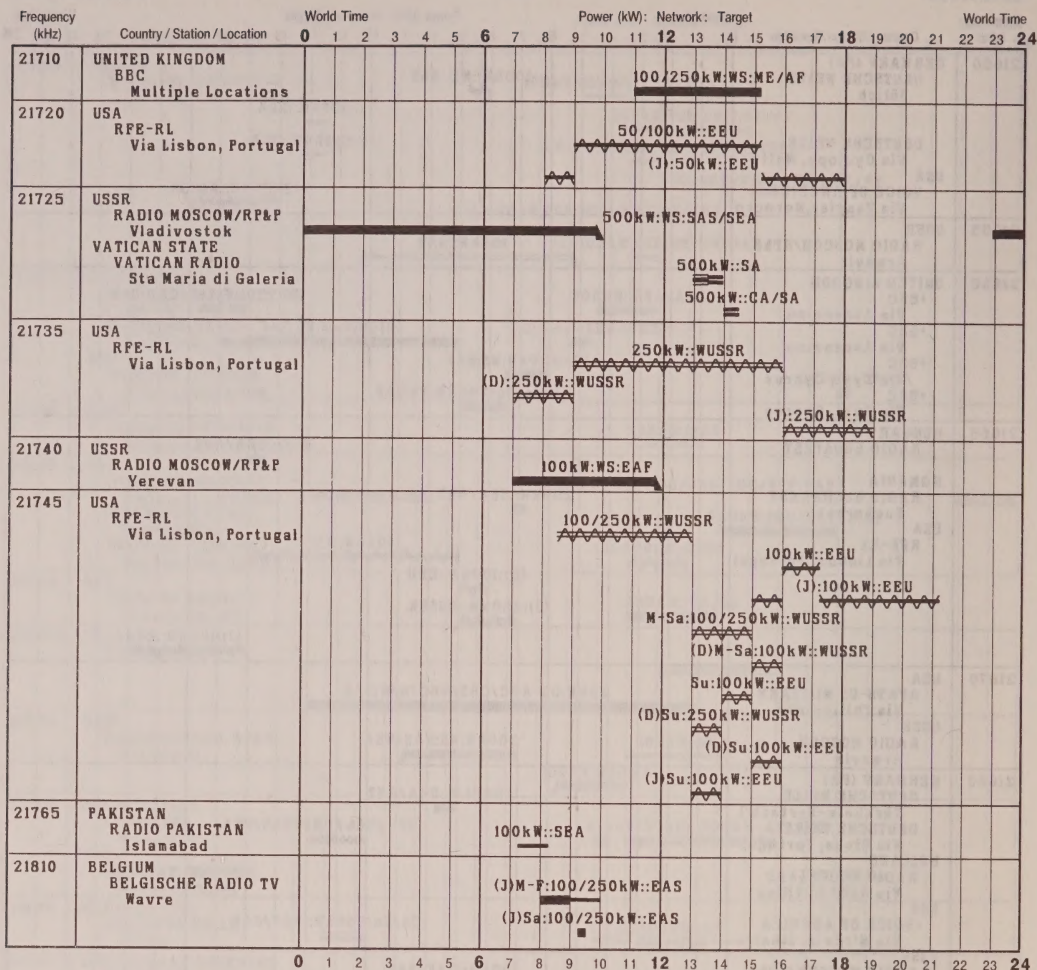
ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING / \ / or / \ EARLIEST HEARD LATEST HEARD + TENTATIVE

Frequency (kHz)	Country / Station / Location	World Time										Power (kW): Network: Target										World Time				
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
21555	SWEDEN SVERIGES RIKSRADIO Varberg													100kW:USB:DS-1:ME/SAS												
														100kW:USB:DS-1:ME/AF												
														(D):100kW:USB:DS-1:ME/SAS/SEA												
														(D):100kW:USB:DS-1:ME/AF												
														(J):100kW:USB:DS-1:ME/SAS/SEA												
														(J):100kW:USB:DS-1:ME/AF												
21560	GERMANY (FR) DEUTSCHE WELLE Jülich DEUTSCHE WELLE Via Kigali, Rwanda USA VOICE OF AMERICA Dixon, California													100kW:SEA/ANZ												
														250kW:SEA/ANZ												
																				250kW:CA/SA						
21565	USSR RADIO MOSCOW/RP&P Armavir													240kW:SAS												
21570	USA APRIS-US MILITARY Delano, California +CSM WORLD RADIO Orancon, Maine VOICE OF AMERICA Via Kavála, Greece													(J):100kW:DS-ABC/CBS/NBC/NPR:EAS												
														500kW:PROJECTED:AF												
														(J):250kW:USSR												
21580	USA VOICE OF AMERICA Greenville, NC													250kW:CA/SA												
21583v	IRAQ RADIO BAGHDAD																									
21585	USSR RADIO MOSCOW/RP&P Dushanbé													100kW:SEA												
														100kW:WS:SEA												
21590	SOUTH AFRICA RADIO RSA Meyerton USA VOICE OF AMERICA Greenville, NC													Alt 17780kHz:500kW:AF/WEU												
																				250kW:SA						
21600	GERMANY (FR) DEUTSCHE WELLE Jülich													(J):100kW:AF												
21605	UNITED ARAB EMIRATES UAE RADIO Dubai													300kW:EU												
21610	ITALY RTV ITALIANA Rome USA VOICE OF AMERICA Greenville, NC VOICE OF AMERICA Via Kavála, Greece													Su:100kW:DS-1/DS-2:EAF												
														250kW:CA/SA												
														(J):250kW:ME/SAS												
21615	ITALY RTV ITALIANA Rome USA WYFR-FAMILY RADIO Okeechobee, Florida USSR RADIO MOSCOW/RP&P Tashkent													100kW:SEA/ANZ												
																				100kW:EU						
														100kW:SAS/SEA												
21620	FRANCE RADIO FRANCE INTL Issoudun-Allouis													100kW:EAF/ME												
21625	JAPAN RADIO JAPAN/NHK Via Moyabi, Gabon USA VOICE OF AMERICA Via Philippines USSR RADIO MOSCOW/RP&P Leningrad													500kW:GENERAL:EU/NAF												
														(J):250kW:EUSSR												
														240kW:ME												
21640	UNITED KINGDOM BBC Woofferton													250kW:WAF/CAF												
														(J)Su:250kW:WUSSR												

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / JAPANESE / MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or EARLIEST HEARD LATEST HEARD + TENTATIVE

ENGLISH	GERMAN / DEUTSCH	FRENCH / FRANÇAIS	PORTUGUESE / PORTUGUÊS	SPANISH / ESPAÑOL
ARABIC / اَرَبِيْ	RUSSIAN / РУССКИЙ	CHINESE / 中文	JAPANESE / 日本語	MULTILINGUAL
SUMMER ONLY (3)	WINTER ONLY (D)	JAMMING / 〰 / or /	EARLIEST HEARD	LATEST HEARD
				+ TENTATIVE



ENGLISH GERMAN / DEUTSCH FRENCH / FRANÇAIS PORTUGUESE / PORTUGUÊS SPANISH / ESPAÑOL
 ARABIC / RUSSIAN / РУССКИЙ CHINESE / 中文 JAPANESE / 日本語 MULTILINGUAL OTHER
 SUMMER ONLY (J) WINTER ONLY (D) JAMMING or or EARLIEST HEARD LATEST HEARD * TENTATIVE



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stoner communications, inc.**

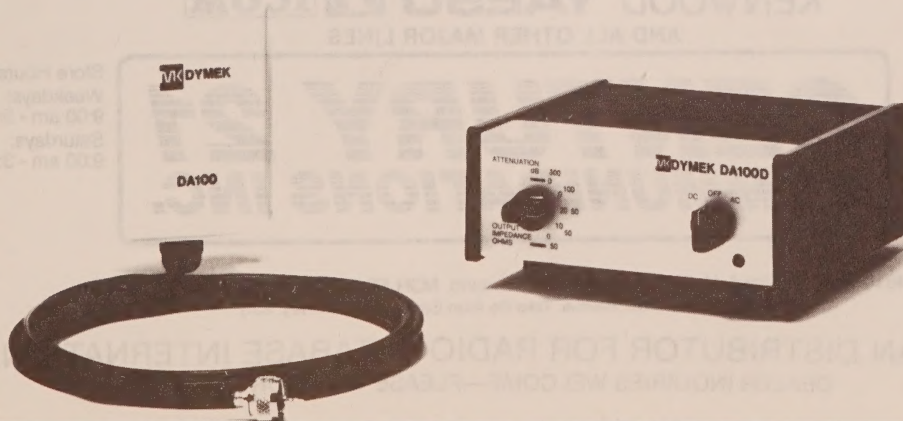
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- Power Required: Switch selectable 110 or 240VAC,
50-60 Hz, 4 Watts, or 12VDC

DA100DM Marine version also available with fiberglass whip antenna for use on or near salt water.



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RADIO DATABASE INTERNATIONAL

1987 BUYER'S GUIDE TO WORLD-BAND RADIOS

RDI RATINGS OF OVERALL PERFORMANCE

- ***** Superb
- **** Excellent
- *** Very Good
- ** Good
- * Fairly Good

No stars = Fair (F), Poor (P) or Unacceptable (U)

CLASSEMENT GENERAL RDI

- ***** Superbe
- **** Excellent
- *** Très Bon
- ** Bon
- * Assez Bon

Non Etoilé = Moyen (F), Médiocre (P) ou Inacceptable (U)

CLASIFICACION GENERAL RDI

- ***** Magnífico
- **** Sobresaliente
- *** Muy Bueno
- ** Bueno
- * Bastante Bueno

Sin estrellas = Regular (F), Mediocre (P) o Inaceptable (U)

EINTEILUNG IN KLASSEN RDI

- ***** Ausgezeichnet
- **** Vorzüglich
- *** Sehr Gut
- ** Gut
- * Ziemlich Gut

Ohne Sternen = Nicht Sehr Gut (F), Schlecht (P) oder Unannehmbar (U)

RDI SWL/DX 用総合評価

- ***** 超優秀
- **** 優秀
- *** 秀
- ** 優
- * 良

星なし： (F) 可, (P) 不良, (U) 不可

RDI BUYER'S GUIDE TO PORTABLE WORLD RECEIVERS

Ever since Sony introduced its pioneering ICF-2001 portable shortwave radio back in 1980, world radio listening hasn't been the same. Gone forever are the days of large, clunky receivers, their dozens of tubes smoking and glowing angrily in the dark. Gone, too, are the days of having to guess at what frequency you're tuned in to. Today, high-tech computer-type circuitry makes it a real joy to look up a frequency in your RADIO DATABASE INTERNATIONAL, punch it in, then sit back and enjoy.

Now, seven years after the unveiling of the ICF-2001, a wide range of advanced-technology portable receivers is available worldwide to suit every need.

We have carefully tested, firsthand, each model listed in the **RDI Buyer's Guide**, adhering to the no-nonsense standard of integrity and accuracy that have been our hallmark since 1977.

To facilitate comparing prices among competing models, US "list" price is usually given, as that country has one of the world's broadest selections of world receivers. These prices thus serve as an effective worldwide index to relative price differences once adjustments are made for local commercial and tariff considerations.

RDI scours the earth for interesting new models of world receivers. For models we have tested that are not found in North America, the price given is that in the country where the receiver was obtained.

The following self-contained portables are listed in descending order of suitability as devices for listening to worldwide shortwave radio broadcasts. Test results are based on self-contained operation using batteries and built-in antennas.

*** Sony ICF-2010/ICF-2001D \$389.95



Top-rated Sony ICF-2010/ICF-2001D

The best portable on the market today, this innovative and advanced Sony world-band receiver — called the ICF-2010 within North America, the ICF-2001D elsewhere — provides very good shortwave, as well as mediumwave AM, perfor-

mance. FM performance, as is often the case with Sony world receivers, is less exemplary.

Much of this superior performance results from an enhanced-fidelity concept with the cumbersome title of "synchronous exalted-carrier selectable side-band" (ECSS-s). This advanced technique reduces distortion and interference, making listening more pleasurable than is possible on most conventional world receivers, even though Sony has not provided an audio stage or speaker equal to the aural potential of ECSS-s.

The '2010/'2001D is compact enough to be suitable for almost any kind of traveling. Yet, it incorporates nearly every feature imaginable to gladden the hearts of world radio aficionados, as well as travelers. For example, there are elaborate clock/alarm/sleep facilities and a dial light to aid the traveling world radio listener, along with a multitude of computer "memories" in which you can store your favorite channels, then bring them back later at the push of a button.

Early production samples suffered from excessive "hiss" when the ECSS-s circuitry was switched in. It appears as if this has been reduced, albeit at the expense of high-frequency audio response. A more consistent drawback has been in the casual alignment of ECSS-s circuitry at the factory (see box). Another has been in the overly-wide "wide" bandwidth that lets in too much interference from stations on adjacent channels.

Sony tells us they are aware of these difficulties and should have them remedied in due course. But, even without these minor mid-course corrections, the Sony ICF-2010/ICF-2001D is the pick of the lot in a portable.

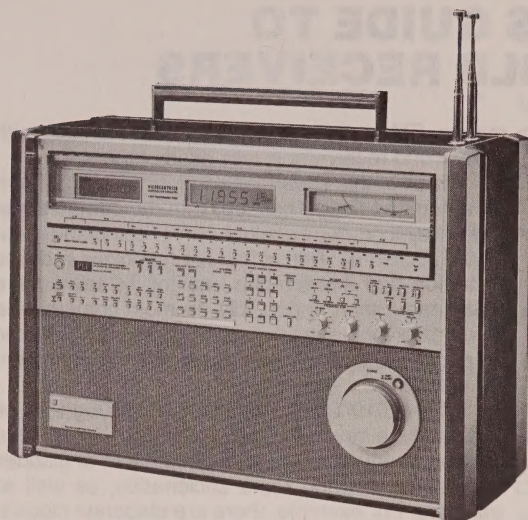
Oddly, despite healthy demand for the radio in the United States, Sony appears to be having significant distribution problems with the ICF-2010. One Sony sales representative informed RDI that the company is importing only a modest quantity of '2010's — well below observed demand — into the country each month.

As a result, at the time of this writing, this excellent portable is often unavailable in the US. Fortunately, in other countries distribution appears to be keeping pace with consumer demand.

A complete test report on the Sony ICF-2010/ICF-2001D is available via *RDI White Paper*.

*** Panasonic RF-9000/National DR-90
\$3,800.00

Ridiculously overpriced and grossly overweight, this guilt-edged entry from Panasonic nevertheless performs quite well, overall. Its audio quality, in particular, helps make shortwave listening pleasurable. Some design oversights notwithstanding, the RF-9000/DR-90 comes equipped with nearly every feature imaginable, making the set some-



Panasonic's hefty RF-9000 "Portable"

thing of a gadgeteer's delight — or shortwave circus freak show.

The behemoth RF-9000/DR-90 — a portable in name only — should sell well at such outlets as Neiman-Marcus, nestled alongside platinum bidets and wolf's nose fur coats. For those seeking a more satisfactory marriage of treasure and result, better overall performance — audio quality excepted — can be found at a fraction of the cost in Japan Radio's superb new NRD-525 tabletop receiver, which is actually considerably lighter than Panasonic's entry into the portable refrigerator look-alike market.

***** Grundig Satellit 600 \$650.00**

The Grundig Satellit 600 is a nominally portable model in need of Weight Watchers that nonetheless provides above-average overall performance, plus unusually pleasant audio quality and a wide array of useful features. These range from a 24-hour clock/alarm to keypad tuning to programmable channel memories. FM performance similarly is superior.

As is the case with nearly every portable tested, the '600 — which lacks the relatively tight "skirt" selectivity of the top-rated Sony ICF-2010/ICF-



Grundig's pleasant-sounding Satellit 600

2001D, above — is not really up to the rigors of fishing for faint "DX" catches from within congested bands. However, for general shortwave listening, the results are pleasing. Lifelong broadcaster Arnold Hartley, an IBS panelist with some fifty-odd years of shortwave listening experience, considers the '600 among the most pleasant sets he has ever used for listening to world radio programs.

Although — perhaps surprisingly — the European-made '600 costs far less than does the Japanese-made Panasonic RF-9000/DR-90, its audio quality is fully comparable, making it a relatively affordable alternative for armchair world radio listening.

A complete test report is available via *RDI White Paper*.

***** Grundig Satellit 650 About \$675**

Not tested, but appears to be functionally similar to the Satellit 600, preceding, save that it tunes to 30, rather than 26.1, MHz, and has color-coded controls — a small, but desirable, touch to make operation less confusing.

**** Philips/Magnavox D2999 \$399.00**

The current version of this recent large-sized entry from Philips of Holland performs very nicely not only on shortwave, but also on FM and other local bands. Its audio quality is well above average, as well, making it in many ways comparable to the Grundig Satellit 600/650.

A complete test report appears elsewhere in this edition of RADIO DATABASE INTERNATIONAL.

**** Philips D2935 About \$169.00
(outside North America only)**

A simplified and more compact version of the Philips/Magnavox D2999, preceding, the D2935 — currently not available in North America — is unquestionably the best value today in Europe for a high-performance shortwave portable.

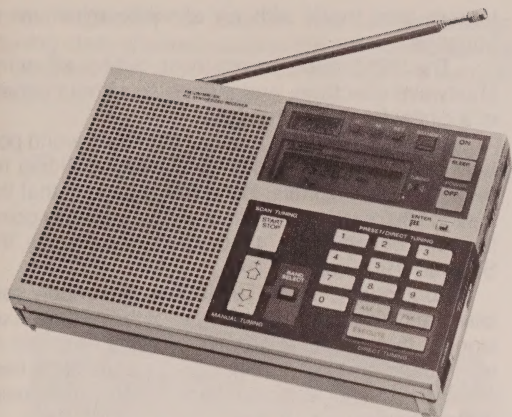
A complete test report may be found in "Affordable Portable I" elsewhere in this RADIO DATABASE INTERNATIONAL.

**** Sony ICF-2002/ICF-7600D \$269.95**

A traveler's delight, the paperback-sized Sony ICF-2002 — called the ICF-7600D outside North America — delivers more performance than does any other portable in its size class. Its only significant drawback is its modest sensitivity, which limits its use in receiving faint shortwave stations.

For the traveler, there are 24-hour clock/alarm/sleep facilities. Favorite stations can also be stored for later immediate recall by pushing a button, as on a car radio.

On the other hand, no dial light is included. Also not included is a tuning knob. Instead, elevator-type up-down "slewing" buttons tune in single-channel (5 kHz) increments...not the best arrangement, but more than adequate.



Sony's ICF-2002/ICF-7600D judged best for air travel.

For the regular air traveler, the ICF-2002/ICF-7600D's combination of performance, features and size make it an obvious choice.

**** General Electric World Monitor \$235.00
(US only)**

An upgraded version of Panasonic's discontinued model RF-2600, the GE World Monitor II — available, often discounted, only in the US and on American military bases worldwide — is second only to Philips' D2935, above, as the preferred choice for the newcomer to world radio listening.

As to whether the World Monitor will continue in the General Electric line throughout 1987, we have had three answers from GE: yes, no and maybe. However, there are indications that the supply of radios on hand is sufficient to last some time.

The World Monitor's only significant drawbacks are modest frequency stability — although rarely such that it needs retuning — and a tendency to produce repeat signals ("images") 6 MHz down. For example, a station on 17605 kHz will tend to pop up again — albeit much more weakly — as a false signal on 11605 kHz. But in most other respects — notably audio quality — it produces results on a par with more costly world receivers.

For air travel, the World Monitor is larger and heavier than many other portables, such as those produced by Sony. It lacks some of the snazzier "bells and whistles", such as programmable channel memories, found on a number of newer models such as the Philips D2935. However, this relative simplicity makes for fewer things to go wrong, which in part accounts for the World Monitor's above-average record of reliability.

Unlike most small portables, the World Monitor comes equipped with an inboard dual-voltage ac power supply, an analog signal-strength meter, plus a light to illuminate both that meter and the digital frequency readout. The World Monitor also provides unusually strong, clear audio, making it pleasant for listening to local and world stations, alike.

Incidentally, although this GE receiver is officially termed the World Monitor II, the packing cartons and other printed matter simply refer to it as the World Monitor.

For a more complete report on the GE World Monitor, see "Affordable Portable III", found elsewhere in this RADIO DATABASE INTERNATIONAL.

**** Panasonic RF-3100/National DR-31 \$399.95**



Panasonic RF-3100

According to a former consultant to Panasonic in Japan, the engineering crew that designed the classic RF-2800/RF-2900 and RF-2200 world receivers in the late 1970's was reassigned in the early 1980's to design Panasonic computer hardware.

The RF-3100/DR-31 was among Panasonic's first efforts emanating from the replacement radio engineering team. The results signaled a perceptible slip in the performance of Panasonic's radios.

Although the '3100/'31 possesses superior audio quality and worthy FM performance, in other respects its performance is less substantial. Unfortunately, it's too large for traveling and eats batteries like candy.

The Panasonic RF-3100 is a perfectly acceptable world receiver, but not equal to alternative models available at the same or lower prices.

*** Embassy Ambassador 2020 \$279.95**

Produced for the US firm of Electronic Equipment Bank by the Taiwanese manufacturer, Sangean Electronics, Inc., the Ambassador 2020 is essentially identical to the Sangean ATS-803, save that the Ambassador utilizes two switchable bandwidths instead of the one found on the '803. List price notwithstanding, the actual selling price is expected to be under \$200.

A complete test report may be found in "Affordable Portable II" in this RADIO DATABASE INTERNATIONAL.

*** Eska RX33 DM598 (roughly \$290)
in West Germany**

The Eska RX33 is scheduled to be produced for the Swedish firm of EDVIS by the Taiwanese

firm of Sangean Electronics, Inc. Not tested or seen by us as yet, the '33 appears to be essentially identical to the Embassy Ambassador 2020, preceding.

Radio West informs us that they are to be the US distributor; that an upgraded RX33II is also planned; and that the actual selling price in the US will be comparable to that of the Ambassador 2020, reviewed in "Affordable Portable II" in this RADIO DATABASE INTERNATIONAL.

*** Sangean ATS-803 \$299.95**

The feature-laden Sangean ATS-803 provides fairly good performance at a reasonably affordable price. The reason is that the actual selling price in the US thus far has been around \$180, making it comparable in price to the General Electric World Monitor.

A complete test report may be found in "Affordable Portable II" in this RADIO DATABASE INTERNATIONAL.

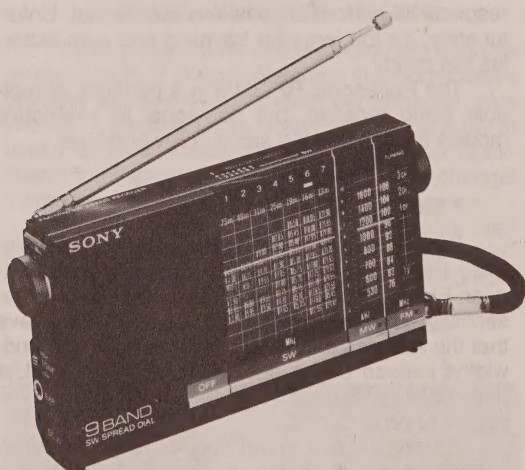
*** Supertech SR-16H Around \$125.00
(Europe only)**

Essentially identical to the Sangean ATS-803, preceding, the Supertech SR-16H sells in Western Europe for approximately the equivalent of \$100-125.

At the current selling price, the Supertech SR-16 is a genuine bargain for thrifty shortwave listening in Europe.

A complete test report may be found in "Affordable Portable II" in this RADIO DATABASE INTERNATIONAL.

*** Sony ICF-4910/ICF-4900 \$99.95**



Sony's ICF-4910/ICF-4900 pocket portable

Another of Sony's little innovations, the ICF-4910, known outside North America as the ICF-4900, provides quite decent world radio performance in a box not much larger than a pack of cigarettes. As a result, it is a favorite among globe-

trotters who travel with an absolute minimum of baggage.

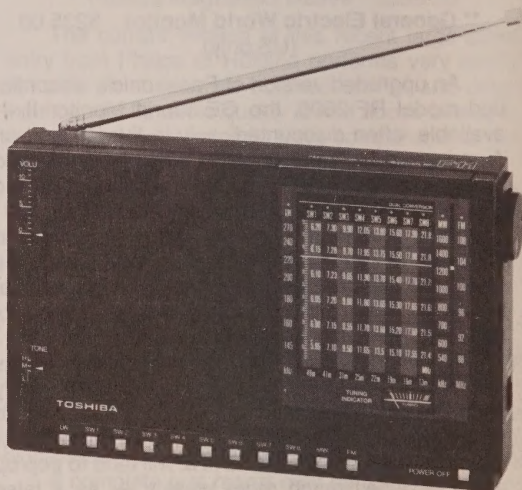
The '4910/'4900 covers most, but not all, of the shortwave spectrum, and it does so without benefit of a digital frequency readout.

The '4910/'4900 is the only miniature world portable that is selective and effective in reducing repeat ("image") signals. What this means is that the station you're trying to hear is almost certainly going to sound better on the '4910/'4900 than on, say, the Silver XF1900, below.

Additionally, the '4910/'4900 is reasonably sensitive, allowing it to bring in some of the juicy weaker signals that elude a number of other models of world-band portables. Although the speaker is flea-sized, the overall audio quality is not too unpleasant when taken in small doses.

The truth is, however, that listening to the Sony ICF-4910/ICF-4900 day-in-and day-out can wear your aural patience thin. But for the weight-conscious traveler, it provides an acceptable alternative to larger and more costly portables.

**(F) Toshiba RP-F11 About \$125
(outside US only)**



Toshiba RP-F11 compact. Available in Europe, but hard to find in US.

Similar in many respects to Panasonic's discontinued RF-B50, Toshiba's variation covers more of the shortwave spectrum, is more apt to be able to receive weak stations and comes with a genuine signal strength meter...a rarity in compact travel portables.

Unfortunately, the RP-F11 suffers from inadequate IF rejection, with the result that false signals sometimes pop up into what would otherwise be pleasant reception. Also unfortunately — at least for Americans — the RP-F11 is no longer available in the US.

Additionally, the RP-F11 lacks the degree of selectivity found on virtually all of Sony's small portables. Nevertheless, the Toshiba RP-F11 provides reasonably good all-around performance at a fair

price, especially for listeners who concentrate on tuning clear-channel stations that are relatively free from interference from nearby stations — a rarity in today's world of international radio.

(F) Sony ICF-7600A/ICF-7600AW \$179.95

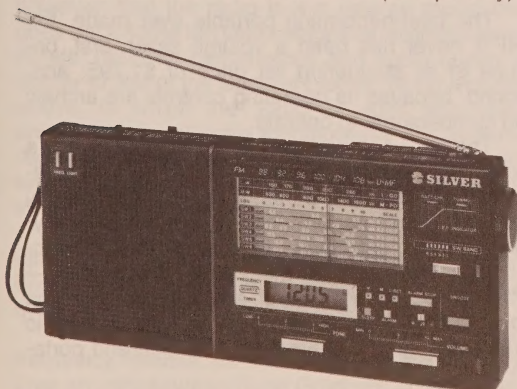


Sony ICF-7600A/ICF-7600AW compact

Very similar to the Toshiba RP-F11 in size, shape and performance...save that the Toshiba covers more of the shortwave spectrum, and thus is able to pick up more world radio stations. Too, the Sony lacks a genuine signal-strength meter.

Because Sony products are widely distributed in certain countries, and the '7600 is more sensitive to weak signals than is Sony's more sophisticated ICF-2002/ICF-7600D, the '7600A has become a favorite of foreign journalists in parts of Africa and Asia. Perhaps more to the point, members of the fourth estate are not traditionally enamored of high technology and thus welcome the '7600A's lack of digital readout, programmable channel memories and the like.

(F) Silver XF1900 About \$125.00 (Europe only)



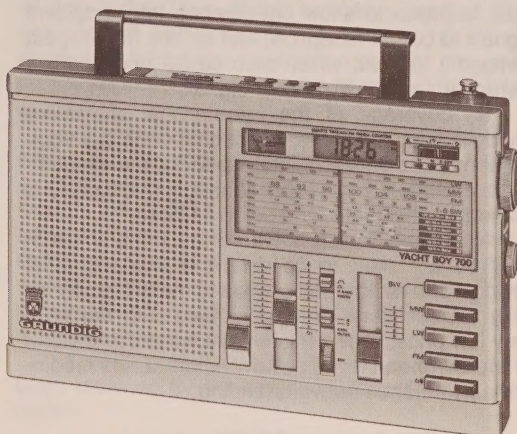
Silver XF1900

A few years ago, the then-new Silver XF1900 offered good value in a simple world radio portable with digital frequency readout. Nowadays, there are simply too many better choices available for the XF1900 to continue to be attractive.

Although the XF1900 provides fairly good audio, a 24-hour clock/alarm and a dial light, it performs suboptimally in terms of rejecting interference from nearby sources, as well as suppression of repeat ("image") signals. All this means that the same broadcast that comes in clearly on a better model may be disturbed by a cacophony of noise on the XF1900.

In all, the XF1900 continues to be a decent buy. But it's not equal to the comparably priced Super-tech SR-16, much less the worthy Philips D2935, both of which are also available in Europe.

(F) Grundig Yacht Boy 700 \$249.00



Grundig Yacht Boy 700

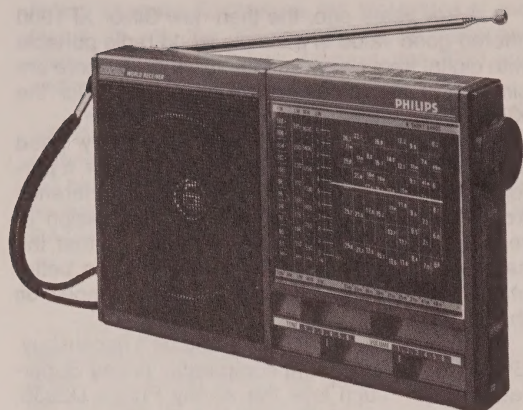
Hardly Grundig's pride of the fleet, the Yacht Boy 700 is insensitive to weak signals, uninspiring in its ability to reject interference from adjacent stations, and possesses inadequate rejection of repeat ("image") signals. In short, it picks up fewer stations than it should, and those stations that it receives tend to be disrupted with unnecessary interference.

All this notwithstanding, the '700 has a number of commendable features: digital frequency readout, a 24-hour clock/timer, analog signal-strength meter, built-in dual-voltage ac power supply, a dial light, and above-average audio power.

In recent years, Grundig gradually has been upgrading the technological caliber of its world receivers. Hopefully, in due course the Yacht Boy series, which is by now seriously out-of-date, will be the beneficiary of this effort.

**(FP) Philips D1835 About \$55.00
(outside North America only)**

Similar in appearance to the Sony ICF-7600A, the Philips D1835 is the lowest-priced entry in that company's recent attempt to reenter the shortwave listening market with vigor.



Low-cost Philips D1835

Unfortunately, it lacks sensitivity to weak signals; is prone to allow interference from adjacent signals to bother reception; and suffers from repeat ("image") signals, which also cause unnecessary disruption to otherwise-clear signals.

Its coverage of the international shortwave bands is fairly complete, although it skips the tropical bands and 75 meter international band altogether. Its frequency readout, although not digital, is reasonably accurate for a set in its class.

In Europe, which is where the lion's share of D1835's are likely to be sold, the proliferation of strong world radio signals tends to make high sensitivity unnecessary. This, combined with the set's very low price, allows it to fill a niche in the low end of the European world receiver market...its mediocre performance notwithstanding.

(FP) Sangean SG-789 \$99.95

A very small travel portable with analog, rather than digital, frequency readout, the Sangean SG-789 covers most of the international and tropical world radio bands. Given the availability of the smaller and far better Sony ICF-4910/ICF-4900, above, the '789 has little to commend it.

(FP) Embassy Diplomat 4950 \$99.95

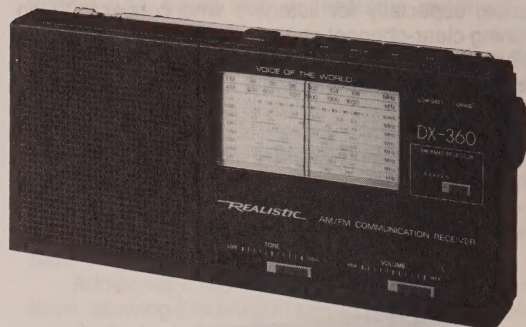
Virtually identical to the Sangean SG-789, preceding, but distributed by the US firm of Electronic Equipment Bank.

(P) Sangean ATS-801 \$179.95

Lacking coverage of the upper portion of the shortwave spectrum, the Sangean ATS-801 is so unselective as to be nearly useless for reception of world radio signals. Its tuning system is dreadfully slow, and as if this weren't enough repeat ("image") signals proliferate and battery consumption is disconcertingly high.

(P) Tandy/Radio Shack Realistic DX-360 \$99.95

Bringing up the rear, alas, is the one radio that is the most widely distributed in the world, Radio



Lowest-rated Realistic DX-360

Shack's Realistic DX-360. A greatly stripped-down version of an already bad radio, the Silver XF1900, above, the DX-360 has neither digital nor reasonable analog frequency readout. As a result, when you turn on the DX-360, you have no idea where you are on the band. In an effort to make the radio truly a dog, Radio Shack also stripped off the XF1900's clock/timer, sleep control and longwave band.

Radio Shack knows wheat from chaff. Its former model DX-400 world receiver was a very fine world-band portable, indeed. Yet, it was dropped in 1985, while the DX-360 was retained. Hopefully, we will see a revival of more interesting world receivers in the future from this omnipresent organization. In the meantime, the DX-360 should be avoided.

The following models have reportedly been discontinued, but may still be available new in some retail outlets. Prices are in the range of actual or estimated sale prices as of the time RADIO DATABASE INTERNATIONAL went to press. Because these are discontinued models, prices vary widely and interesting bargains can sometimes be struck with retailers seeking to unload outdated inventory.

****** Sony CRF-1 About \$1,000.00**

The best-performing portable ever made, the CRF-1 never has been a volume seller, first, because of its staggering list price of \$1,795; and, second, because its operating controls are archaic and cumbersome to operate.

The CRF-1 is no travel portable. Instead, it's a pretty large semi-professional communications receiver suited to field portable applications. Nearly every aspect of performance is top-drawer — dynamic range, selectivity, sensitivity, image rejection...the works. Only the "wide" bandwidth — which is too wide to be of any use for receiving world radio signals — disappoints, although audio quality is only about average for a high-end portable.

The DXer who can strike a handsome bargain on a new CRF-1 is a lucky person, indeed.

**** Panasonic RF-2900/National DR-29**

About \$175.00

Very similar to the General Electric World Monitor II, in its day the RF-2900/DR-29 was *the* affordable portable to own. Especially interesting is the high-performance version sold in the United Kingdom a few years back.

At the right price, the RF-2900/DR-29 is still a good choice for a newcomer's first world receiver. For more details, see the description of the GE World Monitor II.

**** Sony ICF-2001** \$169.95 in New York,
more in Europe

Shortly after Panasonic introduced its RF-2800/RF-2900 portables, Sony in 1980 came out with its long-awaited response, the ICF-2001. Although, overall, the '2001 did not really outperform the Panasonic entries, it was much more compact, and thus suitable for air travel. More importantly, it dispensed with traditional analog tuning circuits, replacing them with synthesized tuning derived from computer technology. In so doing, Sony opened the door to a new era in international radio listening.

In many ways, the '2001 is still a desirable receiver. Yet, such has been the rush to progress that its shortcomings now make it a relatively poor buy in the bustling marketplace of the late 1980's. It's unselective, letting in interference from adjacent signals, and the keypad used for accessing stations directly is prone to failure. Its battery consumption is so great that it is sometimes referred to as the "battery monster".

Otherwise, in most respects it's like its shrunken successor, the ICF-2002/ICF-7600D, above, except that the '2002/'7600D is a bit less sensitive and much more selective.

Still, at the right price the Sony ICF-2001 continues to be a reasonably attractive choice.

**** Panasonic RF-2200/National DR-22** \$179.95

Today, digital frequency displays are as *de rigueur* to world-band radio as color is to television. But Panasonic's RF-2200/DR-22 is one of a shrinking number full-sized world portables that does not come equipped with this "must have" feature. Note, however, that the radio is a veteran model that goes back some ten years before its discontinuance in late 1985. Its performance and audio quality is similar to that of the General Electric World Monitor, above, to which the '2200/'22 adds something unique: a fully rotatable mediumwave AM antenna. As a result, it's a favorite among mediumwave AM enthusiasts who still savor the romance of listening to faraway domestic stations.

It's also used as a direction finder by electric utilities trying to locate sources of electrical interference, as well as by boaters navigating coarsely by mediumwave AM radio signals.

The rub is that in lieu of a straightforward digital frequency readout, for shortwave the '2200/'22 utilizes an unbelievable Rube Goldberg array of spinning metal discs, compensation controls and a

"whistle" circuit that changes pitch to allow the listener to ascertain what channel is being heard. Some fun, eh?

For direction-finders or devotees of radio with ample patience and a peculiar mechanical bent, this is adequate. But for nearly everybody else, the complexity of trying to tune in a shortwave signal on the RF-2200/DR-22 is just too much to handle.

*** Panasonic RF-B50** \$149.95.

Pricey for what it is, the Panasonic RF-B50 is unusual for a compact portable in that it provides two switchable bandwidth choices: wide for listening to local stations, narrow for tuning about the worldwide shortwave bands. Audio quality, as well as overall FM and mediumwave AM performance, are above average for a compact.

The RF-B50 covers most, but not all, of the shortwave broadcasting spectrum. It utilizes an analog, rather than digital, frequency readout that can be off by as much as 15 kHz, or three shortwave broadcast channels. However, for most casual applications this degree of resolution is adequate.

Unfortunately, on shortwave the 'B50 suffers from a lack of sensitivity with its built-in antenna. As a result, weak stations are difficult to bring in. Although the 'B50 is effective in reducing common types of repeat signals ("images"), the lack of adequate rejection of which results in the intrusion of various undesired signals, including those from passing aircraft, which makes the 'B50 inappropriate for use on or near flight paths.

According to Panasonic, the RF-B50 has now been replaced by the model RF-B20 (\$99.95), not tested.

*** Sharp FV-610GB** Under \$170

Somewhat tardily, in 1983, Sharp decided to plunge into the portable world receiver market. Their entries were poorly promoted, hard to find, and did not stand apart from the pack sufficiently for sales to take off. As a result, except for the bargain bin, Sharp world receivers are a thing of the past.

Their top-end model, the FV-610GB (sold in various parts of the world with different suffix letters), is notable mainly for its relatively high sensitivity and propensity to "overload". Thus, the '610 has found favor in parts of the world, such as the Americas and the Pacific, where signal strengths tend to be relatively low.

Coverage of the shortwave spectrum is incomplete, but adequate for most applications. Selectivity is only fair, allowing some interference from adjacent signals to disturb listening to favorite programs. And the tuning knob is vague and unresponsive.

Aside from the various Sangean models, the Sharp FV-610GB is the only world receiver tested that comes equipped with stereo FM, albeit that stereo listening is via earphones only. Also to its credit, the '610 incorporates digital frequency readout, a 24-hour clock/timer with sleep control, plus a dial light for nighttime listening.

For someone outside Europe seeking a portable world receiver with the ability to pull out relatively weak stations, the FV-610GB may still be a good choice...provided the price is right.

*** Panasonic RF-6300/National DR-63**
Around \$350.00

Originally introduced at the then-hefty price of \$700, the RF-6300/DR-63 — along with the RF-799, below — were two of Panasonic's great engineering flops.

Viewed positively, the '6300/'63 has pleasant audio for listening to world and local broadcasts alike. It also includes twelve programmable channel memories to allow favorite stations to be brought up at the push of a button. In principle, at any rate.

Unfortunately, in practice the '6300/'63 includes something rarely encountered this side of a radio museum: a manual front-end selectivity range switch. So when you push the button for your favorite station, it will appear only if that switch is cranked to the correct range position. Too, every time you alter the range-switch setting, the set jumps to a predetermined frequency, such as 5500 or 16000 kHz, from which the frustrated listener must tune laboriously to where he wishes to be.

Selectivity, despite two switchable settings, is mediocre. Neither sensitivity nor dynamic range are appropriate to a set anywhere in this price class.

It makes little economic sense to pay the current going price for the '6300/'63 when comparable sums can buy any of a number of truly delightful world receivers.

(F) Kenwood R-11/Trio R-11 Under \$125

Virtually identical to the Toshiba RP-F11, above...if you can find one.

(F) Grundig Satellit 300 Under \$250

Another flawed design that failed to catch on in the marketplace, the Grundig Satellit 300 is longer on features than it is on performance.

The '300's fundamental shortcoming is that it is insensitive to weak signals. But beyond that lies shortwave performance that is uninspiring in nearly every respect.

What is worthy on the '300 is its audio quality, ergonomics and FM performance. Tuning is very flexible, being via a variable-rate incremental-tuning knob, keypad, band slewing and programmable channel memories. A 24-hour clock-timer is also included, along with a dial light for nighttime listening. An inboard dual-voltage power supply allows the set to be used on ac power nearly anywhere in the world, and a genuine analog signal-strength meter is included.

The Satellit 300 is scheduled to be replaced by the Satellit 400 International in the near future.

(F) Sharp FV-310GB Under \$140

Identical to the Sharp FV-610GB, above, except that it lacks digital frequency readout, clock/timer and stereo FM. What a deal.

(F) Grundig Yacht Boy 650 Under \$200

The Grundig Yacht Boy 650 covers most, but not all, of the shortwave spectrum in use by world broadcasters. Frequency readout is both analog and digital, with the latter sharing a 24-hour clock/timer. Unusual for such a compact set is the presence of a dual-voltage inboard ac power supply — a real convenience for the world traveler.

As is the custom with Grundig receivers, audio quality is above average in quality and strength. FM performance is similarly commendable. As for shortwave broadcasts, performance is only so-so, overall.

The Yacht Boy '650 will probably be of interest mainly to air travelers interested in its many features, rather than optimum shortwave performance.

(F) Panasonic RF-799 Under \$300

Panasonic's attempt to compete with Sony's ICF-2001 was a real flop. Whoever designed the RF-799 apparently had little knowledge or appreciation of what shortwave listening is all about.

The truth is that this set could have been a real winner. Panasonic has a reputation for producing reliable products and, at the time of the '799's unveiling, the Sony '2001 was suffering from problems with keypad failure and high battery consumption.

Features are in profusion: digital readout, keypad tuning, programmable-channel memories, inboard dual-voltage ac power supply, clock/alarm, sleep timer and dial light.

Closer inspection reveals design shortcomings. Low-cost circuitry — inappropriate in a \$300 receiver — allows repeat ("image") signals to appear to disturb reception of desired stations. Tuning is in single-channel (5 kHz) increments, as with the Sony ICF-2002/ICF-7600D. However, unlike the Sony, the '799 has no fine-tuning provision to interpolate between 5 kHz points. This makes it impossible to detune slightly to reduce interference, plus makes it difficult to receive properly "split-channel" broadcasters, such as All India Radio on 9912 kHz.

The '799 covers only portions of the shortwave spectrum, and those portions that were skipped include some of the choicest segments — notably 9.0-9.5 MHz — used by such major world broadcasters as the BBC.

It's hard to justify purchasing such a flawed piece of equipment when so many more desirable models are freely available today at the same or lower cost.

(P) Panasonic RF-9/Panasonic RF-9L/National Micro 00 \$99.95

This miniature radio, similar in appearance to Sony's respectable ICF-4910/ICF-4900, has only size working in its favor. Unselective with repeat ("image") signals aplenty; lacking complete coverage of the shortwave spectrum; and crowned by really bad audio; the RF-9/RF-9L/Micro 00 brings back the nightmare of what shortwave used to sound like before Sony, Panasonic and others revolutionized shortwave listening with advanced-technology portables less than a decade ago.

RDI BUYER'S GUIDE TO TABLETOP WORLD RECEIVERS

Most of us become acquainted with world radio by purchasing a low-cost portable world radio. This is a common-sense way to test the waters, even if most inexpensive portables tend to provide a somewhat disappointing introduction to international broadcasting.

Once the wonders of world radio have been explored, the audible squeals and other drawbacks of low-cost, low-technology portables take their toll on most listeners' patience. They either throw in the towel or move up to one of the more advanced portables, such as the well-rated models reviewed elsewhere in this RADIO DATABASE INTERNATIONAL.

Tabletop Radios Sought for High Performance

Results with state-of-the-art portables can be satisfying, indeed. But, for some, satisfying isn't good enough. They seek the best the marketplace has to offer, so turn to tabletop world radios...receivers, if you prefer.

Is this the way to go? Do tabletop models really outperform high-technology portables?

Drawbacks Amidst The Virtues

Yes, the best tabletop models do tend to outperform the best portables...at least for those trying to hear certain types of difficult signals. But these high performers also exact a stiff financial tribute. Additionally, they're usually not self-contained, forcing you to go through the rigamarole of affixing an external antenna.

The drawbacks of tabletop models are not inadvertent. Steep prices result from the production of a more intricate piece of equipment, as well as the relative lack of economies of scale resulting from specialized, low-volume production. As to most tabletop radios' lack of a built-in antenna, this is because the best results for perfectionistic world listening are brought about by an external antenna — preferably outdoors — just as with a television set (for more on this topic, see articles elsewhere in this RADIO DATABASE INTERNATIONAL).

Still, costly tabletop radios tend to reflect their origin as designs based on nonpublic applications — listening to ships at sea and the like — in which audio quality is not of primary importance. These voice-oriented radios are known as "communications receivers", although hyperbole-prone advertisers often use this same term to describe pedestrian models that are anything but suited to such tasks.

So, for the individual fond of listening to music over powerful world radio stations, certain sophisticated tabletop models can be a poorer choice than one of the better portables designed to reproduce faithfully voice and music programs alike.

Variations in Price and Performance

Tabletop models, like portables, come with a wide variation in price and performance. One — the Sony ICF-6800W — provides high-quality overall performance with audio quality that is especially pleasant. Provided you don't feel the need for jet-cockpit-type controls, it's an excellent choice for listening to music and voice programs day-in-and-day-out...even though in some respects it is not so well suited as other models for snaring really tough, faint signals.

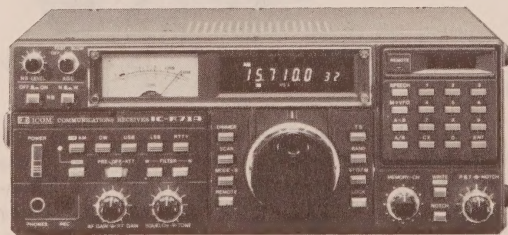
For those more interested in "DXing" — the art of tuning flyspeck signals — audio quality is of less compelling importance. The range of choices for DXing is considerable, ranging from the top-rated Japan Radio NRD-525 — reviewed in detail elsewhere in this edition of RADIO DATABASE INTERNATIONAL — to the popular ICOM IC-R71 to less-costly models from Yaesu and Trio-Kenwood.

Because they are targeted to an elite of world radio listeners, tabletop models tend to be harder to find than are most portables. For example, in the US Sony all but hides its ICF-6800W — and, alas, many other models, as well — from consumers. But the good news is that many of the electronics specialty firms that do carry these tabletop world receivers also provide useful consumer advice and service after the sale.

How They Perform

The following tabletop radios, all of which are priced in the US at under \$1,000, are listed in descending order of suitability as devices for listening to world shortwave broadcasts. Keep in mind that if you listen mainly to weaker stations — or speech, such as newscasts — audio quality will be of less importance than if you listen to musical programs over strong, clear stations.

**** ICOM IC-R71 \$949.00



ICOM's IC-R71A, popular for "DXing"

Because of its high level of communications-receiver performance, the IC-R71 series (IC-R71A, etc.) has become popular among radio enthusiasts chasing after the really weak, tough catches to be found among the over-1,000 channels of world ra-

dio broadcasting. The 'R71 performs very well and incorporates a host of advanced electronic features.

What the 'R71 does not provide is audio quality. Distortion at some audio frequencies approaches 30%, making long-term listening unnecessarily tiring. Numerous tiny, cramped controls also diminish user pleasure.

Judging from letters received at RADIO DATABASE INTERNATIONAL, the quality-control problems that characterized the predecessor model, the 'R70, have been overcome. Accordingly, for reception of tough signals the 'R71 provides an alternative to the Japan Radio NRD-525, NRD-515 and NRD-93 models reviewed elsewhere in this RADIO DATABASE INTERNATIONAL ("When Money Is No Object").

The 'R71 is also a favorite among electronics experimenters who relish modifying its electronics circuitry to obtain enhanced performance. Sometimes this produces results that are more "sizzle than steak", but in other instances the improvements are audible and worthwhile. Certain of these alterations, which tend to be frowned upon by the factory, are obtainable through world radio specialty firms in North America and Europe.

The now-pricey 'R71 is a radio enthusiast's set, and to that extent makes an excellent choice for snaring tough "catches". Those more concerned with pleasant reproduction of music and other programs from major broadcasters may wish to consider, instead, the Sony ICF-6800W, as well as the two models from Yaesu and Kenwood.

A complete test report on the ICOM IC-R71A is available via *RDI White Paper*.

***** Sony ICF-6800W \$719.95**



Sony's ICF-6800W provides exceptionally pleasant results

Arguably the most agreeable radio extant for everyday listening to shortwave broadcasts, the Sony ICF-6800W manages to make do nicely without most of the "bells and whistles" found on other models of high-performance world radios. Rather, the '6800 stands out by providing unusually well-rounded and pleasant results, along with uncomplicated, straightforward operation. In particular, its audio quality is well above average, and circuit noise — "hiss" — is essentially nonexistent. Both bass and treble tone controls are included, as well.

Another unusual plus with the '6800 is that it

operates off either ac power or batteries. It's also fully self-contained, with features from antennas to a reading light being built in. This allows the quasi-portable '6800 to be moved easily from room-to-room, as well as outdoors — or even tossed into the car on trips.

The '6800's chief shortcoming lies in its dynamic range, which is the most limited of any currently available tabletop model tested. This can result in "overloading", with stations sounding as though they're piled on top of each other when they really aren't. So in strong-signal areas, such as Europe, high-gain external antennas should be avoided. On the other hand, with the built-in antenna the '6800 works fine in nearly any part of the world.

An additional drawback — common among mid-priced world radio models — is that the '6800's wider bandwidth is far too wide for useful reception of all but a distinct minority of stations operating well away from adjacent sources of interference. Its narrow filter, on the other hand, works very well. Added to this is the '6800's ability to be detuned slightly without causing high distortion, thus allowing the narrow filter to be unusually flexible in reducing interference while broadening reception of high audio frequencies.

The '6800 has all the sex appeal of a shoebox. As a result, some dealers and consumers — accustomed as they are to high-tech world radios garlanded with blinking lights and banks of controls — tend to give the '6800 short shrift.

In the US an additional problem is that, in the past couple of years, Sony has all but rationed its meager imports of world radios available to dealers. As a result, dealers are often out of stock of various Sony models and — understandably — tend to steer buyers to competing models. Still, in time the patient and persistent consumer can obtain a '6800.

Those in the US having difficulties locating a '6800 can call Sony's Consumer Information number: 800-222-7669. If this fails, you can write Product Planning, Sony General Consumer Audio, Park Ridge NJ 07656. Fortunately, outside the US Sony world-band radios appear to be available more or less in concert with consumer demand.

For traditionalists who treasure high-quality audio quality in a high-performance tabletop receiver, the '6800 is an obvious choice. The Sony ICF-6800W tends to be discounted more heavily than are most other tabletop models. As a result, in many countries the '6800 is one of the more affordable tabletop world radios available to careful shoppers.

***** Yaesu FRG-8800 \$599.95**

All electronics design is based on compromise relating to what the consumer is willing to pay. A properly balanced design allows the various functions to operate at a similar level so there are no great weaknesses in given aspects of performance or the range of features offered.

Balance is the chief characteristic of the Yaesu FRG-8800's design. A good compromise model when you want above-average audio quality, but



Yaesu FRG-8800 provides good performance for the money

don't wish to forego such advanced operating features as keypad frequency entry and pushbutton channel memories, the attractively priced Yaesu FRG-8800 provides worthy all-around performance with audio that is not tiring. The sensible layout of the front panel and operating controls make the set enjoyable to operate, as well.

The '8800 is more than adequate for most world radio listeners' needs. Still, in some respects it is not what it could be. Of its two bandwidths, the narrower is sufficient for most shortwave listening applications, but the wider is too broad to be of use except for listening to the minority of world radio stations operating "in the clear".

As of presstime, the '8800 has not seen a price rise since its inception in late 1984, notwithstanding that the yen has risen dramatically during that time. So long as this situation remains in effect, the '8800 should be considered a better-than-average value.

A complete test report on the Yaesu FRG-8800 is available via *RDI White Paper*.

**** Kenwood R-2000/Trio R-2000 \$649.95**



Trio-Kenwood R-2000

The R-2000 — sold variously under the brand names "Kenwood" and "Trio" — is another good compromise model for those seeking advanced operating features, above-average audio quality and generally good performance. The R-2000's front panel is sensibly laid out for user-friendly operation of the wide variety of controls. Operating this set is a pleasure.

The R-2000 provides pleasant results, but suffers from mediocre dynamic range and front-end selectivity that can result, among other things, in "overloading" under some circumstances — particularly when a substantial external antenna is used in those parts of the world, such as Europe, where received signal strengths tend to be high. Another drawback is that the '2000's tuning is in 50 Hz increments only — more than adequate for typi-

cal world radio listening uses, but rather coarse for certain communications types of reception.

As with most tabletop models tested, the "wide" bandwidth position is too wide to be of real use in tuning world radio stations. But to compound the problem, the narrow filter is rather tight for day-to-day listening.

Withal, the R-2000 is a pleasure to operate and provides generally good performance in receiving world radio programs, although it is not the optimum choice for "DXing" or receiving communications-type signals.

(F) Heathkit/Zenith SW-7800 (Revised) \$349.95



Heathkit/Zenith's disappointing SW-7800

Poor in its original incarnation circa 1984, but upgraded after a period of modest re-engineering, the Heathkit SW-7800 is unique in that it comes available only as a kit which the buyer must assemble from instructions that are all but foolproof.

Alas, the end result of dozens of hours of soldering and snipping is a world radio that is far below the level of performance of any other model tested. Nevertheless, its relatively affordable price — the lowest of any tabletop tested — plus its role as a widely-distributed kit, allow it to fill niches that would otherwise be vacant.

If kits aren't your special passion, you should consider, instead, for one of the better-rated portables or tabletop models.

A complete test report on the Heathkit/Zenith SW-7800 (Revised) is available via *RDI White Paper*.

Discontinued Models

A number of discontinued models still are available new on dealer shelves. However, unlike discontinued portables, discontinued tabletop models are rarely heavily discounted beyond pre-discontinuation levels. Indeed, in the case of some prized models, prices may be higher than they were when the sets were still in the manufacturer's catalog.

Here's a glance at some of the more recently discontinued models you might come across in your wanderings through electronics stores...

**** Kenwood R-1000/Trio R-1000 About \$500**

The first of Kenwood's modern world radios to come on the market, the R-1000 — also sold under the brand name "Trio" — was an early favorite

among DX aficionados and electronics experimenters. Indeed, Radio West in the US acquired its reputation in equipment modification mainly because of its alterations to the R-1000's circuitry.

Although the current Kenwood R-2000 is in many ways a more modern receiver than the older R-1000, the '1000 is less prone to overloading, and thus continues to be preferred when long antennas are used, for example.

***** McKay Dymek DR 101-6 Under \$1,000**

The best of the receivers produced by the firm of McKay Dymek before it was taken over by Stoner Communications, the DR 101-6 manages to incorporate McKay's innovative ideas, such as a variable-rate slewing knob, without certain of the drawbacks evidenced on the earlier versions of the DR 22 and DR 33 series (see below).

As with other models in the McKay line, the DR 101-6 comes equipped with a substandard speaker and mediocre front-end selectivity. But with a worthy external speaker the end result can be quite pleasant.

***** Yaesu FRG-7700 About \$550**

Similar in performance to the newer FRG-8800 (see above), but lacking many of the '8800's "bells and whistles", the '7700 — which has three bandwidths — can be an attractive alternative when it is priced to move.

**** McKay Dymek DR 33-C \$995.00**

Some years ago, McKay Dymek, an innovative California firm, decided to produce world radio receivers/tuners that would look like and interface with conventional stereo hi-fi components. Thus, the reasoning went, world radio tuners would take their places alongside their popular FM brethren.

The earliest models, the DR 22 and DR 33 series, were not entirely successful, even though they did have the appearance of hi-fi components. The problem — obvious in retrospect — lay in trying to market an exotic, but low-fidelity, medium to consumers specifically seeking equipment producing the *ne plus ultra* in aural fidelity.

Various novel approaches were tried in order to make world radio more palatable to the uninitiated, but the end result was akin to putting sugar on vegetables to make them palatable to hamburger-loving kids.

The whole concept was rooted in erroneous assumptions, so the '22 and '33 never really took off. However, before selling out to Stoner Communications, McKay did come up with an improved model, the DR 101-C (see above).

A small quantity of the final version of the DR 33-C — the DR 33-C/6 — is still on hand at Stoner Communications' warehouse. Presumably it incorporates improvements over the earlier version of the DR 33-C we tested some years back.

*** Bearcat/Uniden DX1000 \$649.00**

When Bearcat, long known as a pioneer in the manufacture of scanning devices, announced its first world receiver, it was expected that something advanced and quite special would emerge. Instead, what appeared was a thoroughly serviceable, but uninspiring, radio seemingly designed to be produced at minimal cost.

Given the alternatives, there is really no reason to select this overpriced model unless extenuating circumstances, such as the availability of parts and service in your country, make it appropriate. As of presstime, the DX1000, discontinued in 1986, continues to be available at some dealers in North America and Europe. According to Uniden, there are no plans for that firm to re-enter the world radio market.

*** Kenwood R-600/Trio R-600 About \$400**

Kenwood's bargain receiver, the R-600 — also sold under the "Trio" name — provides decent, uncomplicated world radio reception with a minimum of operating controls and features.

Introduced on the market long after the appearance of the R-1000, and as high-technology portables were present as competition, the R-600 was too little, too late. At present, there is no satisfactory tabletop set in the '600's price range, but Lowe's planned HF-125 (see "Coming Up!" elsewhere in this RDI) at least has the potential of being an effective replacement.

*** Panasonic RF-4900/National DR-49 About \$500**

An otherwise-modest performer with surprisingly pleasant audio quality, the Panasonic RF-4900 — also sold as the National DR-49 — operates off both ac power and batteries.

Because the '4900 was so widely distributed, it still turns up new every now and then in various parts of the world, such as Asia and Latin America.

THE PHILIPS/MAGNAVOX D2999: TURNING A PUMPKIN INTO CINDERELLA

Consumers who were unfortunate enough to have, in the fall of 1985, spent \$400 on the Philips/Magnavox D2999 found themselves with a world-band radio that was all but useless. False signals, generated by poor circuitry within the receiver, showed up everywhere on the dial. To say that the D2999 made world radio listening confusing, frustrating and downright unpleasant would be an understatement. It was one of the worst sets we had ever tested.

Philips management, to its credit, reacted to this state of affairs by recalling the entire lot of receivers. Anyone who had purchased a D2999 was given the option of having his set upgraded, at no cost, for improved performance. Today, the D2999 is once again on the market, but in revised form.

Multiband Field Portable

The Philips/Magnavox D2999 — which covers longwave and mediumwave AM, as well as the complete world radio spectrum — is a *field portable*...that is, fully self-contained, yet too large and heavy for convenient travel. As befits a device intended for use worldwide, it operates not only from batteries, but also on 120/240V ac power. The potential for power line hum has been minimized by placing the entire ac/dc power supply inboard.

Front-End Selectivity Improved

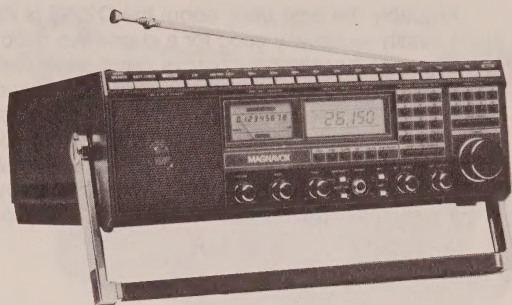
Front-end selectivity — the curse of the original D2999 — is improved in the cleaned-up version, even though it remains substandard for a model in its price class. A good external antenna still allows vestigial false shortwave signals to be generated in the higher reaches of the shortwave spectrum, such as the 13, 16 and 19 meter bands. Within the 11 meter band, even mediumwave AM signals appear. Withal, front-end selectivity is now acceptable.

Excellent Sensitivity

On the other hand, sensitivity — even with only the built-in telescopic antenna — is nothing short of excellent. Dynamic range is at least average for a set in this class, allowing outdoor antennas to be used in many parts of the world. However, in Europe overloading may occur with an outdoor antenna under certain conditions, such as when you're tuning the 49 meter band at night.

Reasonable Selectivity

There are two bandwidths. The wider is excessively wide for most world radio listening situations, but allows for pleasant listening to local stations and to the occasional shortwave broadcast out in the clear. The narrower width works well under more typical conditions.



Philips/Magnavox D2999 Portable

Controls Well Thought Out

Some painstaking and creative thought went into the design of the cabinet and controls of the D2999. With a few exceptions, even the smallest detail has been attended to carefully.

Its synthesized tuning arrangement — which tunes and reads out to the nearest kHz — is very complete. There's a foolproof keypad to select any desired frequency with a minimum of button-pushing. Added to this are a scanner of sorts and sixteen memories in which to store your favorite stations.

There's a real variable rate tuning knob. When you give it a good flick, it shifts into overdrive and takes off. The knob assembly also has detents that produce one "click" per kHz (10 kHz on FM) tuned at normal speed. This provides a tuning aid to the visually impaired as well as enhanced "feel" for bandscanning.

The top of the set has a handy row of buttons to allow you to get right to whichever meter band you'd like to scan. Next to each button is a red light-emitting diode (LED) which glows if you're tuned to that band. If you're between bands, two LED's light up — one for each of the bands astraddle where you're tuned.

The D2999 incorporates an analog meter for battery and signal strength, along with a clock/timer that operates in either 24 or 12 hour format but, alas, does not display seconds. For \$400, though, you shouldn't find, as you do with the D2999 and a distressingly large number of other models, including the Sangean ATS-803, that the clock shares the front-panel display with the frequency readout. This means you can see the time or frequency — but not both — at the same time.

The D2999's liquid-crystal display and signal/battery strength meter are illuminated — a plus for nocturnal listening — and the long, beefy carrying handle also works as an effective "tilt leg" to prop the '9999 to a pleasant angle once the set is laid down for listening. The rugged, lengthy (160 cm/63") telescopic antenna swivels in discrete increments a full 360 degrees — a nice touch, especially for optimum FM reception. Indeed, this is as

worthy a built-in antenna as we've come across in some time.

Commendable Audio Quality

Arguably the best thing about the D2999 is its audio quality — usually good for a shortwave radio. The separate bass/treble controls have been well engineered to allow the listener to shape the audio frequency response to suit the varied demands of high-fidelity FM, on one hand, and the reduced-bandwidth response of longwave, mediumwave AM and shortwave, on the other. Two speakers, fed by a relatively powerful monaural amplifier, are pro-

vided — one atop the cabinet, the other (switchable) in front — to disperse the sound as appropriate throughout the listening area. Although there is a trace of hiss, it's not objectionable.

Revised D2999 Provides Enjoyable Listening

Overall, the cleaned-up version of the D2999 is not only an improvement over the original attempt, but is actually a worthy world-band radio in its own right. For those who listen mainly to the major shortwave broadcasters, the Philips/Magnavox D2999 is straightforward to operate and provides aurally pleasant results.

AFFORDABLE PORTABLE I: PHILIPS D2935

Now that advanced technology has brought world radio more into the mainstream of consumer electronics, what consumers find missing is real value. Noisy, inexpensive low-tech portables perform dreadfully — not surprising, after all, as something more sophisticated than a souped-up AM radio is needed to receive signals properly from thousands of kilometers away. The newer high-tech models, on the other hand, often perform splendidly, but usually hit the pocketbook with a wallop.

Good Values Appearing

Does a good world radio *have* to cost as much as a VCR?

Not any more. While a number of firms, such as Sony, are forging ahead into the frontiers of technology, other companies are making their mark by taking existing advanced technology and producing quite good radios at surprisingly affordable prices.

Probably the best example of this emanates from the large Dutch conglomerate of Philips. To almost everyone's surprise, it came up with a fairly good low-cost travel portable in 1986. That radio, the D2935, provides worthy performance except for selectivity...a shortcoming that — at a price Philips quotes as equivalent to only \$160 — many consumers have been willing to overlook.

1987 Model Features Major Improvement

Now, as we go to press, Philips informs us that the D2935 is being produced for 1987 with improved selectivity. We haven't been able to test the revised model — it doesn't exist yet — but Philips engineers inform us that the D2935's new bandwidth filter is the same as that already used in the larger D2999 portable's "narrow" bandwidth position. As we analyzed this filter in our tests of the D2999 (see findings elsewhere in this RDI), we have been able to form a tentative judgement as to how the 1987 D2935 should perform.

The Philips D2935 is about midway in size between the General Electric World Monitor II (reviewed elsewhere in this RDI) and Sony's new ICF-2010 and 2001D portables. And, like the World Monitor, the D2935 operates not only off batteries, but also from 120 and 240 volt ac current. This allows it to be used in nearly any part of the world — a plus for those who spend long period of time in different countries.

Flexible Tuning Configuration

As the descendant of the '2999, the '2935 is a decent piece of equipment. It has keypad direct frequency entry and programmable channel memories, along with the customary tuning knob. Actually, the keypad and other pushbutton controls aren't "buttons" at all. Instead, they're only markings printed on a sheet of Mylar. You "dent" the markings with your finger, just as you do on some microwave ovens, to make your choices.



Affordable Portable I: Philips D2935

This has plusses and minuses. The major minus is that the Mylar sheet is less comfortable and precise to operate than are regular buttons. The plus is that dirt, water and sand can't get inside the radio as easily. This makes the '2935 unusually well-suited to use around water and on beaches.

The tuning knob is unusual for a portable in that it's variable-rate: the faster you tune, the faster the rate of tuning. If you tune carefully, this can be a plus. But if you tune too fast, the radio jumps frequency by no less than 100 kHz, forcing you to back up and retune. The tuning knob also has detents that produce one click per kHz. This is helpful for anyone, but especially those with visual impairment.

Performance Above Average

The '2935 includes a midpower audio stage with a single tone control and a fairly good speaker. The end result is above-average audio quality, although not fully equal to the exceptional standards of the larger Philips/Magnavox D2999, Grundig S-600/S650 or Sony's very fine ICF-6800W. The only quirk is that every now and then the audio output on both our test units became unusually low, but revived unaccountably to normal level once we twiddled the tuning knob.

Shortwave frequency readout — to the nearest kHz — is via a liquid-crystal display, which can be lit at the touch of a button. Signal strength is indicated by five light-emitting diodes (LED's).

Overall, shortwave performance is quite good for a portable. Useable sensitivity with the built-in antenna is fairly good, although there is less sensitivity and more "hiss" than there is with the '2999. That's because the '2999 has an unusually long built-in telescopic antenna as compared to that of the '2935.

The set is quite stable, too. Once a station is tuned in, it doesn't need to be retuned. For a portable, dynamic range is fairly good, even though front-end selectivity is mediocre. So as long as the built-in antenna is used, most listeners won't hear "funnies" mixing in with the station they're trying to hear.

Selectivity on existing samples of the '2935 has been quite poor except for the minority of world radio stations that operate in the clear. Selectivity with the forthcoming 1987 version, using the D2999's "narrow" filter, should be more than adequate, based on our tests with the existing D2999. Still, we miss the switchable dual-bandwidth feature found on many other models of world radios. With two choices, you can have your cake and eat it too: "wide" for maximum fidelity when there is little or no interference; "narrow" to reduce or eliminate interference when you're tuning crowded bands. But, at \$160, compromises are inevitable.

FM performance is very good, overall. Medium-wave AM performance with the new version should be less exciting because only one bandwidth is used, and it's geared to reception of world radio stations. In some locations the D2935 produces a 3 kHz howl on 560 kHz. This was found on both our test units in Philadelphia, but not elsewhere, suggesting that the problem results from a peculiar combination of local mediumwave AM signals mixing to cause a spurious signal on 563 kHz.

Distribution not Worldwide

Within Europe, the D2935 appears to be widely available through Philips well-honed system of distribution. However, in the US neither Philips nor its American subsidiary, Magnavox, appears to be experienced in the marketing and distribution of high-technology world radios. With Magnavox, the situation is particularly confusing. One dealer reports that he was told by his Magnavox distributor that the D2935 was available for immediate shipment to dealers. The dealer prepaid for a quantity of radios, supposedly to be received in a few days, only to be

told some weeks later that the set didn't exist in the US, after all. Another dealer reports that he was told by Magnavox that the minimum dealer order quantity for the D2935 would be several *hundred radios*.

The reason for Magnavox's apparent lack of enthusiasm for the D2935 appears to relate to the way the company is set up. Even though world portable radios such as this are known to sell twenty-to-sixty thousand units per year in the US, a Magnavox spokesman has indicated to RDI that the market for world radio in the US simply is not there in sufficient quantity to be of interest to a firm the size of Magnavox. Additionally, Magnavox's distribution channels are not geared to world radio sales, which largely take place in specialty stores and electronics/camera outlets, and changing them is more bother than it's worth.

So, for now, the Philips D2935 is available only in Europe and selected other world markets. However, in due course the Philips D2935 could appear on the US "grey market" or Magnavox could alter its stance.

Distinguishing the Two Versions

How can you distinguish the earlier D2935 from the improved version? According to Philips, the 1987 version is to have a recessed on-off power switch, whereas the original version's equivalent switch protrudes from the radio's cabinet by about 3 mm. (1/8").

A final bonus is that the D2935 is manufactured by Philips at its Hong Kong facility. This bargain-priced set thus is not tied to the Land of the Rising Yen, so its price is likely to remain relatively stable throughout 1987.

AFFORDABLE PORTABLE II: TAIWAN'S NEWEST AMBASSADOR

With the Japanese yen — and thus Japanese world radios — rising in price, budget-conscious world radio listeners have begun taking a closer look at offerings from countries whose exports are unaffected by the upward spiral of the yen. The chief beneficiary of this consumer shift has been Taiwan, although nearby Hong Kong has also appeared under the "Philips" and "Magnavox" brand labels (see reports elsewhere in this RDI).

The hub of this new activity is Sangean Electronics Inc. in Taipei. For the past couple of years, now, a variety of world radios has been turned out by this firm under a variety of brand names as well as "Sangean."

Sangean Model Appears in Many Guises

The pride of the Sangean fleet — and the only of their products worthy of serious consideration by the world radio listener — is the Sangean ATS-803. This mid-sized travel portable contains many state-of-the-art features, along with reasonably good performance and pleasant audio quality. At least as important is its affordable selling price: between \$150-290 in Europe and North America.

The standard Sangean ATS-803, which is also sold in Europe as the Supertech SR-16H (about \$125) and in North America by Sears under its own brand name (about \$210), covers European long-wave, worldwide mediumwave AM, FM stereo 87.5-108 MHz, plus the entire shortwave world radio spectrum. Tuning is via conventional knob, direct-entry keypad, programmable channel memories and scanner. The '803 is fully portable and self-contained, being well-suited to use during travels, as well as in the home. It's powered not only by batteries, but also by an outboard worldwide dual-voltage ac converter. It comes equipped with a liquid-crystal display for precise frequency readout so you can tell immediately what channel you're tuned to, plus a five-LED signal-strength indicator. A dial light, bass and treble tone controls, sleep-delay timer, clock-alarm/timer, and power lock (to keep the set from accidentally turning on during travels) round out the '803's list of features.

The '803's performance has many plusses. For one thing, it's very stable — essentially drift-free. Pick a frequency, punch it in and it stays there. Sensitivity with the built-in antenna is quite good, too. So the set can bring in, without problem, a variety of weak and strong stations. Because its dynamic range is fairly good, it works well in just about any part of the world.

Single Bandwidth Major Drawback

There is only one major drawback: its bandwidth filter is unselective. This means that when you're trying to pluck one signal from a band full of competing stations, you'll probably hear more interference than you should. Lesser drawbacks include a "thumping" sound when tuning up and down the bands, distorted "breakthrough" of local FM stations into the world radio spectrum, plus some hum



Affordable Portable II: Sangean ATS-803

when the outboard ac converter is used in lieu of batteries.

So there the story ends: the Taiwanese manufacture a decent radio that, because of this oversight with the bandwidth filter, is, in the end, only passable. Wrong! And the rest of the story reads like a detective novel.

Given the fact that the '803's only really big problem is this overly wide filter, it came as a bit of a shock when an experimenter opened one of the radios and found — a second filter, this one much better than the first. But it only worked when the radio's scanner was turned on. And the scanner in the '803 is virtually useless. So what to do? End of story?

Dual-Bandwidth Versions Created

In the US, Electronic Equipment Bank decided this was just so much foolishness. So it contracted with Sangean to manufacture for EEB a custom-made version of the '803 with a switch to allow the user to select *either* of the two bandwidth filters: "wide" for full fidelity with stations in the clear; "narrow" for stations hemmed in by interference.

The name for this new radio: Ambassador 2020. It "lists" for \$279.95, but actually sells for under \$200. EEB indicates the '2020 will be sold not only by their firm, but also by a worldwide network of retail dealers.

We tested a pre-production sample of the '2020, and the difference between it and the standard '803 is considerable. With dual selectivity, the '2020 is a much more versatile device...and far kinder to the ears.

EDVIS, a Swedish firm that formerly operated under the name ESKAB, is also having something similar, the ESKA model RX-33 (DM598 — about \$290 — in Germany), performed by Sangean, and surely other firms will follow in due course. EDVIS also plans to modify further the RX-33 in Sweden in the near future.

If history is any guide, Taiwanese world radio manufacturing will follow a progressive learning curve. In the meantime, the Embassy Ambassador 2020 now provides worthwhile results at a reasonable price *vis-a-vis* the Japanese competition.

AFFORDABLE PORTABLE III: GENERAL ELECTRIC WORLD MONITOR

Even in the fast lane of high technology, the newest isn't always the best for your needs. Take, for example, the General Electric World Monitor radio, the original design for which dates back a good decade.

Original Design from Panasonic

The original version of the World Monitor was found not under the GE label, but rather under those of Panasonic and National. Introduced variously as the Panasonic RF-2600 and National Panasonic DR-26, it fared poorly in the marketplace, having failed to distinguish itself adequately from its established sibling, the successful RF-2900/DR-29, from which its design was adapted. The '2900/'29, in turn, was derived from the Panasonic RF-2800/National Panasonic DR-28, which appeared on the market around 1977.

Matsushita — the parent company of Panasonic and National — yanked the slow-selling '2600/'26 from its lines and began producing it in improved guise for General Electric starting in 1982.

Unsurprisingly, the World Monitor lacks nearly all the "bells and whistles" found in state-of-the-art world radios. Here are not to be found programmable channel memories, keypad tuning, scanning circuitry, "slewing" controls, timer...or even a lowly digital clock. Instead, the World Monitor represents a successful twilight entry into the then-emerging generation of high-tech radios.

Good All-Around Performance

So, while its tuning is not synthesized, it does have a digital frequency readout to tell you what channel you're hearing, as well as a genuine analog signal/battery-strength meter. It also incorporates circuitry to reduce certain types of interference and "false" signals. It is reasonably selective, as well, using two bandwidths to allow the listener to choose the more suitable setting depending on what's being received. It's sturdy and portable, with dual-voltage ac power built in. Perhaps best of all, its audio quality is well above average, even by today's standards. As an added bonus, it receives FM and mediumwave AM signals unusually well.



Affordable Portable III: GE's World Monitor

Amidst all these cheers, there are drawbacks. Its elder technology of unsynthesized gear-and-pulley tuning results in drift, so sometimes the tuning knob needs re-tweaking even after a station has been properly tuned in. And "repeat" signals tend to appear 6 MHz below where they should. For example, the BBC on 9410 kHz may sometimes be disturbed by a false "repeat" signal from 15410 kHz. And although the World Monitor is portable, by today's standards it is considered bulky for air travel.

Affordable Price, but Not Found Worldwide

Arguably the best news is its selling price, which usually is under \$200. This makes it an obvious choice for thrifty listeners seeking worthy performance without the complexities of computer-derived operating controls.

A catch? Of course. In mirror-image of the Philips D2935 (see report elsewhere in this RDI), the General Electric World Monitor is distributed *only* in the US and its possessions, along with official US "PX" stores worldwide. And GE has no intention of changing this pattern any time in the foreseeable future. Turnabout, after all, is fair play.

ONWARD BACKWARD!

Say that you've decided to buy a car. You go to the car dealer, make a selection, sign the contract, then trot out to the lot to pick up your pride and joy. When you see it, you gasp. "Wait a minute", you say, "There's no steering wheel!" "Oh," says the salesman, "I am sorry. But the Mooseracer 9000-HP doesn't come with a steering wheel. It's for people who only drive in a straight line."

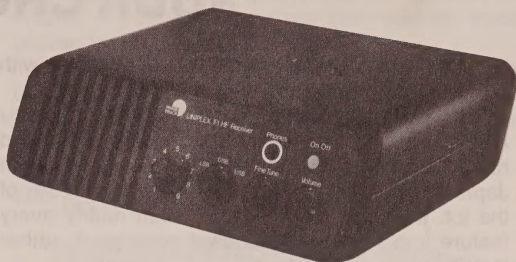
So it is with a couple of slightly eccentric world-band radios. You take it for granted that any radio can be tuned — steered — to the appropriate frequency. Not necessarily so. Some tiny firms can't afford the stiff research and development costs associated with designing a first-rate frequency synthesizer suitable for tuning up and down the shortwave bands. So they take a hoary, but affordable, route: fixed crystal-controlled channels.

What this means is that you have to limit your listening to a tiny number of favorite channels. The other 98% of what the world has to say simply won't be heard unless you purchase new crystals, then disembowel the receiver to install them. And what better way to enjoy a few hours with your shortwave radio than cursing the BBC for changing frequency to 9515 kHz — a crystal you don't have installed — right in the middle of a three-hour reading of Dante's *Inferno*. There you are, screwdriver clenched in hand, sweat rolling down your brow as you fumble to find that one crystal from among the dozens you keep in a cavernous drawer by the radio.

What this means is that these sets — for all but a limited number of applications — are as useful as belly-button lint.

Liniplex F1

If there were a world radio "Apertyx Award" — named after the hairy, wingless and utterly useless bird of "B.C." comic strip fame — it would have to go to the very British and pleasantly eccentric Liniplex F1, reviewed in depth in last year's RADIO DATABASE INTERNATIONAL. On one hand, the F1 incorporates innovative ECSS-s circuitry with far greater enhanced-fidelity potential than is possessed by any other receiver on the market today. Yet, this superb circuitry is followed by one of the most pedestrian audio stages and ear-bending tinny



Liniplex F1 Non-Tunable World Radio

speakers to be found anywhere, which chokes off all the benefit of ECSS-s reception.

The radio performs, overall, quite well in receiving shortwave stations. Yet, this ability is next to pointless, as the F1 receives only up to nine fixed channels. Notwithstanding that it carries a budget-busting price tag roughly equivalent to \$800.

The Liniplex is an excellent performer when its audio is fed to an outboard preamp/amp/speaker system. If enhanced-fidelity world listening is what you're looking for, the F1 merits consideration — providing, of course, that you're willing to make do with hearing the same nine channels day, after day, after day.

A more successful application for the Liniplex F1 has been with radio stations' receiving a limited number of world radio channels for local rebroadcast.

ESKA RX12PL

Possibly — but doubtfully — still available from either the Swedish (EDVIS) or Danish (ESKA Communications Systems A/S) offshoot of the now-defunct Danish firm of ESKA Elektronik A/S, the handheld model RX12PL provides fairly good overall performance and tunes up to twelve (gasp!) fixed channels. If it is still available, the RX12PL should be priced new in the vicinity of the equivalent of \$200-300, including crystals and associated hardware. Not a bad choice if you don't mind listening to the same twelve channels day-in and-day-out.

According to ESKA Communications Systems, the tunable semi-professional model RX99PL portable tested by RDI last year has been discontinued.

WHEN MONEY IS NO OBJECT: FOUR CHOICE PLUMS

With world radio, money literally talks...with more voices, more clarity, more reliability.

Following are four choice plums — all currently available tabletop models — from the world of world radio. Probably our most encouraging finding is that Japan Radio's superb NRD-525 is the least costly of the lot. It also comes equipped with nearly every feature imaginable as standard equipment, rather than as extra-cost options.

Few dealers carry these de luxe models, but those that do almost invariably provide exceptional customer support and service arrangements.

***** **Japan Radio NRD-93** \$7,995.00



The Ne Plus Ultra, Japan Radio's NRD-93

A sterling professional device in terms of both price and quality, the Japan Radio NRD-93 — conceived primarily for maritime use — is notable more for its hardiness and superb quality of construction than for its performance, which is not markedly different from that of its far less costly sibling models, the Japan Radio NRD-525 and NRD-515. With scanner and other options, the price of the '93 can easily top the heady figure of \$9,000! Obviously, this is not the Volkswagen of radios.

Its highly advanced scanner, by the way, is a robust version of that found in the new Japan Radio NRD-525 (see "Hot Knobs: Japan Radio's NRD-525" in this RADIO DATABASE INTERNATIONAL). This excellent accessory allows the '93 to be all but fully automated.

Where money is no object — but reliability and ease of repair are *musts* — this "yachtsman's friend" is one of the world's finest choices, just as it is for use on shore, and provides superior audio quality to boot. Parts and service are available at leading ports, as well as radio specialty firms, worldwide.

A complete test report on the Japan Radio NRD-93 is available via *RDI White Paper*.

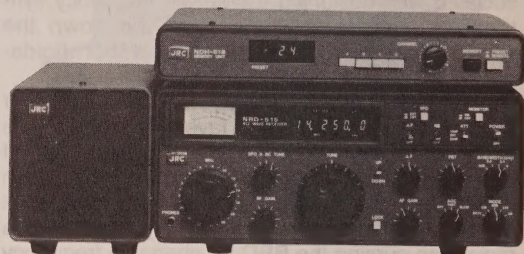
***** **Japan Radio NRD-525** \$1,285.00

An excellent blend of near-professional design, features and performance oriented to the dedicated

shortwave listener, Japan Radio's NRD-525 is a superb and relatively affordable choice for those listening to and "DXing" tough catches from afar. Audio quality is reasonable, but assuredly not in the same class as that of Sony's ICF-6800W (see "Buyer's Guide to Tabletop World Receivers" elsewhere in this RDI).

A complete test report appears elsewhere in this edition of RADIO DATABASE INTERNATIONAL.

***** **Japan Radio NRD-515** About \$1,500



Japan Radio's Rugged NRD-515

Very nearly a professional-caliber communications receiver, the Japan Radio NRD-515 is built like a fortress and provides intelligible signal reception under all but the most excruciating situations. With options, the price can exceed \$2,000.

Operation is straightforward and pleasant, making the '515 well-suited to day-in-and-day-out manual surveillance and scanning of the bands. Nevertheless, the '515's sibling, the NRD-525, is more appropriate to the needs of most world radio aficionados, as the '515's woolly audio is not well-suited to the reproduction of music.

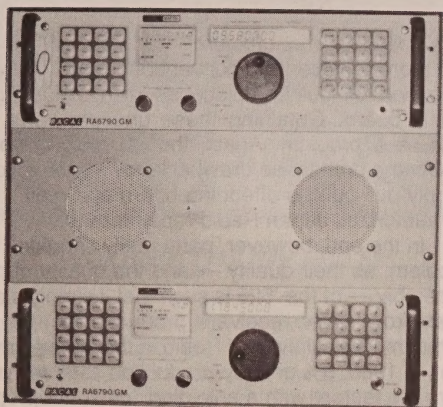
A complete test report on the Japan Radio NRD-515 is available via *RDI White Paper*.

***** **Racal RA6790/GM** Over \$5,000

A thoroughly professional receiver widely used for military and surveillance operations, this pricey US-made version of a British receiver performs superbly, especially in strong-signal environments, but lacks many of the operating features found on most other modern world receivers. Too, its keypad tuning arrangement is suboptimal.

One unusual feature it does have is BITE (built-in test equipment). However, in our tests BITE served no useful purpose when service difficulties arose.

The '6790 and a variety of related British- and US-made models — some of which are priced in the five figures and include advanced operating controls and scanner circuits — occasionally appear, new and used, at greatly reduced prices in such places as Canada, where they are quickly snapped up by zealous radio enthusiasts.



*A Pair of RACAL RA6790/GM Receivers
Used by Radio Canada International
Courtesy RCI*

Discontinued Models

When gilt-edged sets are withdrawn from a manufacturer's catalogue, the market price is liable to do anything from stay constant to drop dramatically. Here and there, some gems are still available in the nooks and crannies of radioland. Among them...

***** Drake R4245 \$1,000-3,000

Arguably the finest set ever produced for "serious" DXing, the US-made Drake R4245 is characterized by unusual operating flexibility, clumsiness of operation and the ability to flush out nearly any signal that makes it to your antenna.

The reaction of most users to the R4245 is the same as that of most people to Margaret Thatcher's

Administration: you either love it or you hate it. If you relish tweaking a variety of controls to obtain subtle enhancement of signal quality, you will embrace the R4245. If you prefer to have the radio do these chores for you, forget it.

In 1985, Jordanian King Hussein's army bought out the last of Drake's R4245 factory inventory, presumably not to "DX" Brazilian tropical band stations. Jordanian conscripts take note!

***** Drake R-7/Drake R-7A \$600-1,600



*Drake R-7/R-7A
Drake's Venerable R-7/R-7A*

Very similar to the Drake R4245, but no less quirky, the R-7/R-7A is inferior only in frequency stability.

On very, very rare occasion, samples of the R-7 and R-7A are still found new. For a brief golden period, they were also being offered on the used market at bargain prices when if-it's-newer-it's-better types dumped their Drakes in favor of the then-latest-kid-on-the-block, the ICOM R-70.

Even today, used R-7's in excellent condition can be found for well under \$1,000, an important price consideration being whether a variety of voice bandwidth filters (e.g., 6, 4, 3 kHz) have been installed to complement the 2.3 kHz filter that came standard with the set when it was new. Otherwise, new filters may be obtained from the Drake factory or Sherwood Engineering.

HOT KNOBS: JAPAN RADIO'S NRD-525

To the professional, \$1,300 for a receiver is absurdly cheap. To the world radio listener, it's a fortune. But for those who can afford it, there is an unusual world-band radio that's worth a close look: the \$1,285 Japan Radio NRD-525.

To give you an idea of just how much the engineers at Japan Radio have stuffed into this box, consider merely one of its standard-equipment features, the scanner. The '525's scanning function performs comparably to that of the NDH-93, an accessory for the \$8,000 Japan Radio NRD-93 professional receiver and an exquisite piece of equipment in its own right (see "When Price Is No Object"). The price of the NDH-93 scanner alone? Nearly \$1,000. The entire NRD-525 — scanner and all — cost \$1,200. It's almost like buying the scanner and getting the radio for free!

Whether any radio is worth over \$1,000 is another matter. It's a judgment call — your call — to which we can only add that the '525 is so well built that it'll probably still be working many years from now. If you keep your '525 for only fifteen years, the annual cost comes to only about \$80.

Computer-Type Modular Design Facilitates Repair

In comparison with its older cousin, the quasi-professional NRD-515, the '525 is something quite different. For one thing, its plastic front panel and controls give it an uncanny resemblance to the \$600 Yaesu FRG-8800. On the other hand, the '525 — unlike the '515 — does incorporate professional-type plug-in circuit boards, even if the shielding panels between those boards are pretty flimsy.

These computer-type boards definitely facilitate repair...even if the '525 is unlikely to need much in the way of service. Although the '525 has no BITE (built-in test equipment), many malfunctions can be traced to a given board by the nature of the symptoms. This allows you to send a single board, rather than the complete receiver, to a repair facility. Another service plus is that the front panel snaps loose for immediate access. It, too, can be forwarded for repair. In fact, the entire radio can be disassembled down to the last board in a matter of minutes.

Parts Quality Generally Excellent

Parts quality of the '525 is generally excellent, but compromises have been made in trying to keep costs down. For example, shielding is generally insufficient to provide a signal completely free from unwanted interaction among circuits within the radio. And, as with the '515, ceramic and consumer-grade mechanical voice bandwidth filters are used.

The use of tiny surface-mounted devices (SMD's, or "chip" parts) — such as resistors, capacitors, diodes and transistors — is another of the secrets of how Japan Radio has managed to create a receiver of this caliber for just over \$1,000. SMD's, which lack the customary wire leads or tabs, are

less costly for manufacturers to install. While they are more reliable than conventional parts, they are also more difficult to replace, as each is glued to the circuit board. Obtaining these unusual parts may also be a problem. Again, though, plug-in boards overcome both these drawbacks by allowing you to simply pull out the offending board and mail it in to an authorized Japan Radio repair facility.

In the end, however, parts really shouldn't be a problem, as their quality — and the quality of parts assembly — of the '525 is such that it simply stands apart from other receivers produced for the consumer market. Universal Radio in the US informs us that, in 1986, 5% of early-production samples came from the factory with a shielding "can" not properly grounded, and one unit came with a board improperly seated. Aside from these factory defects — now routinely looked for as part of Universal's pre-sale checks — no other problems have arisen to date. This tends to confirm our engineering analysis that the '525 will be more reliable than average.

Factory Alignment Initially Suboptimal

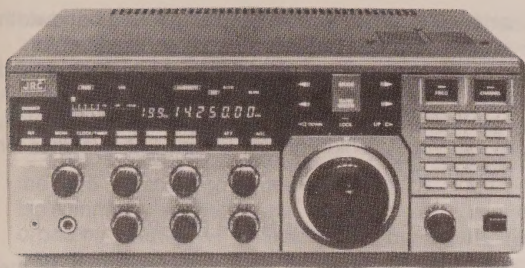
On the other hand, our tests of two '525's — both from the initial production run of some fifty units — indicate that factory alignment during early production was less precise than it should have been. As a result, there has been a higher-than-desirable variation in performance from sample-to-sample. Presumably this problem — disappointing but, alas, not unusual in early production runs of complex equipment — will diminish as production "settles in", like shoes, over time.

Excellent Ergonomics

A good receiver, like a good motor car, should have its operating controls laid out so they are logically located and easy to use. The '525 has countless "bells and whistles", which is one of the set's chief attractions. With so much operating power placed in the hands of the user, the '525 challenges the operator to tweak the last erg of performance out of the receiver.

In order to provide the user with such a high degree of operating flexibility, Japan Radio did not take the usual expedient route and clutter up the '525's front panel with minuscule controls. Instead, its designers freed up valuable front panel space for many of the '525's new functions. Creative engineering and design have also allowed the '525's roster of controls to perform comfortably and logically. Too, most of the '525's controls — the keypad buttons excepted — have above-average "feel".

As the '525 comes from the factory, it is programmed such that the user has to offset manually, with the main tuning or RIT controls, for reception of lower sideband (LSB) and upper sideband (USB). In the original version of the owner's manual, nothing was mentioned about this odd procedure. Fortunately, the newly-printed owner's manual explains,



Japan Radio's Hot New HRD-525

on page 19, how this can be avoided by a simple keyboard command. We tested this on our second test receiver, and it works as it should.

A visual annoyance is that the front panel's digital signal-strength meter, only marginally accurate to begin with, is as jumpy as a grasshopper in a parched wheat field. More positively apropos the front panel, the '525 tunes and displays frequencies to the nearest 10 Hz — a degree of precision found in few other world radios.

Exceptionally Flexible Tuning

The '525 gives the user every means imaginable to tune in a signal, short of shipping out each radio with a trained monkey. Not only is there the traditional tuning knob — the mainstay of any operator-controlled receiver — there are also up-down slewing buttons to aid in rapid bandscanning, a keypad for direct frequency selection, a professional-caliber scanner and no less than 200 programmable channel memories.

Much of the reason for the '525's superb fine tuning is that the set's knob tunes very slowly. At the other extreme, for zipping up and down the bands quickly, the up-down slewing buttons work well. However, some operators have expressed disappointment that an intermediate tuning or slewing rate had not been provided.

Homebrew Spooks, Anyone?

Although we did not attempt to create software to test the '525, the receiver is potentially well suited to light-duty surveillance use, not to mention whatever computer-controlled mischief shortwave-listening hackers may devise. Indeed, the '525 opens up the possibility of eavesdropping computer freaks' becoming miniature "National Security Agencies", using homebrew artificial intelligence software, personal computers and the '525 to poke about the radio spectrum for all manner of juicy information, such as eavesdropping on Air Force One to hear Ronald Reagan cancelling his son's American Express card.

Exceptional Stability Improves Reception Quality

The Japan Radio NRD-525 is an exceptionally stable receiver by any measure. As such, it is unusually well suited to reception of certain types of

communications-type signals: Ships at sea, that sort of thing.

More to the point of what most of us are interested in, the '525's high stability also makes it well-suited to unattended reception of world radio signals through — hang on! — "manual exalted-carrier selectable-sideband (ECSS)". What this mouthful means is that you can listen to one side — rather than both, as is the usual case — of a signal, thus avoiding interference from a station alongside the one you're trying to hear.

The reason for this is simple: world radio signals consist of two identical Siamese-twin-like parts. With certain radios, you can listen to just one of those two parts — the quieter one.

Why Siamese-twin transmissions? Isn't that silly, not to mention wasteful?

Wasteful, yes. Silly, no. This twofor approach allows world radio signals to be received without heavy distortion on inexpensive radios. But for over a thousand bucks things can be done differently.

Alas, there is no synchronous (automatic) ECSS — a disappointment in a newly designed receiver of this caliber, especially inasmuch as Sony's midpriced ICF-2010/ICF-2001D includes it.

High-Tech Automated Operation

The '525's relatively sophisticated scanner, plus a timer and related controls, allow for dedicated listening to a favorite station. For regular listeners to the BBC World Service or other multi-frequenced giants, this can mean all but "hands off" listening nearly around the clock. Similarly, listeners can leave the '525 on, even with spouses and youngsters around, knowing their beloved station will either come in automatically or the set will become silent.

Here's how that scanner works. You pick a group of adjacent programmable memory channels (there are a total of 200 such channels, so it's easy to find vacant groups), then store a different frequency for your favorite station in each channel. For example, with the BBC World Service, if you're in Europe you might store 5975 kHz in channel 110, 9410 kHz in channel 111, 12095 kHz in channel 112, 15070 kHz in channel 113, and so on.

You decide what you wish as a minimum acceptable level of signal strength, then set a special control to that level. You further decide how long during scanning you want the scanner to "sample" each channel (with world radio broadcasts, a fairly long sample time is needed to avoid having the scanner "tricked" by fade troughs). As backup, you can also set the squelch at a level just above that of the radio background noise on a vacant channel.

You then instruct the scanner so that it scans only those four channels (110-113, inclusive) then relax. From now on, you will hear the BBC World Service or your other favorite station without having to get up and keep fiddling with the radio every time a channel peters out or goes off the air.

It sounds like a load of fuss and bother, but it's not — the whole exercise takes less than a minute,

and once it's set, it's set for good unless you choose to change it.

Actually, the '525 can provide robotic ECSS reception, too. This is because the '525 also allows you to program the mode into each memory channel.

Say, you want to use the scanner to listen regularly to the BBC on 12095 kHz, but there's a howl coming from a signal on 12098 kHz. ECSS can reject this. Simply (using the preceding example again) store in channel 112: "12095.00 kHz LSB" ("L" in "LSB" stands for the lower half of the signal).

That's all. From now on, only the lower half of the BBC's signal will be received by the scanner, and the howl on the "high" side will have vanished.

The '525's built-in timer can be used to turn the set on and off each day, adding further to the set's robotic capabilities. Too, the timer is designed to control your tape recorder at the same time.

So, this state-of-the-art radio will select your channels, tune and retune them for high-quality reception, turn itself on and off, and even record your favorite programs for you when you're not home...just like a good VCR.

Passband Tuning Helps Improve Reception Quality

The '525 contains a passband tuning control to help reduce interference and improve audio fidelity. For example, if a signal is "boomy", the passband tuning control can be adjusted to an outer edge of the signal to incorporate more high ("treble") audio frequencies and fewer low ("bass") audio frequencies.

This sort of flexibility is a real aid not only in hearing difficult stations, but also in listening to music and voice programs from major world broadcasters.

Good Selectivity Adds to Listening Pleasure

Every receiver needs at least one bandwidth filter, preferably more, to select the desired station out of the morass of competing stations on the air. A bandwidth filter acts as does a cattle chute, the objective being to let through only one bull — or station — at a time.

The dilemma in the overcrowded shortwave bands is that with a wide filter you may get good audio quality, but too much interference from adjacent stations. With a narrow filter, you might eliminate that adjacent interference, but then you degrade audio quality. As the amount of interference varies considerably from station-to-station and even hour-to-hour, a worthy receiver for serious world radio listening should include as many voice bandwidth choices as is economically feasible to provide the optimum tradeoff between audio quality and interference. This point is not academic, inasmuch as high-quality bandwidth filters are currently among the most expensive parts of a receiver.

For voice and music, the '525 comes with filters that provide two bandwidths: 5.7 and 2.2 kHz. Both bandwidth filters have very fine performance char-

acteristics, but in a radio of this caliber a bandwidth roughly midpoint between these two is called for.

There are circuit provisions for just such a third filter. Although no suitable filter is presently available from Japan Radio, various dealers will install, at extra cost, a high-quality Collins 3.8 kHz filter for this purpose.

Excellent Noise Blanker

The '525 includes a noise blanker that, in the "wide" position, is unusually effective in alleviating disruption of reception by the *rat-a-tat-tat* of Soviet "Woodpecker" over-the-horizon radar transmissions.

Audio Quality About Average

One of the unwelcome surprises with "super-sets" is that they tend to have mediocre audio reproduction. This is not so illogical as it might seem at first blush, as sets costing thousands of dollars are not typically purchased by world radio aficionados but, instead, by military and similar organizations. These outfits could care less about hearing Stravinsky. What they want is audio shaped to reproduce speech intelligibly. Like a telephone.

The '525, in this context, stands out positively, although there is a slight persistent "hiss" audible in the background. Additionally, if an unshielded antenna lead-in is used, digital-circuit whine can be heard, like the "hiss", at low level.

This assesment of how the '525 "sounds" may seem like damnation with faint praise, and to some extent it is. But when compared, say, to Japan Radio's own NRD-515, the '525 is almost an aural treat.

The bottom line is that for listening to both voice and music programs, the '525's audio quality is more than adequate. But it is not in the same league as that of such consumer-oriented models as the Sony ICF-6800W, Philips/Magnavox D2999 or Grundig Satellit 600.

Variable Notch Filter Kills Unwanted "Whistles"

World radio has never been a high-fidelity medium, and still isn't. But, step by step, advanced technology and improved broadcasting techniques have been raising the quality of reception to the point where it is now, at times and with the right radio, comparable to that of local mediumwave AM stations.

One such aural aid is the notch filter. Unlike most improvements in world radio, this is nothing fresh from the likes of Bell Labs. Rather, notch filters have been around for decades, but faded from use in the last twenty years or so except on models produced by the R.L. Drake Company and, more recently, ICOM. Thankfully, Japan Radio has picked up on the concept and included it to good effect in the '525.

In the tropical bands (2-5.7 MHz), which are shared by a potpourri of broadcast and non-broadcast signals alike, this filter is effective in reducing heterodyne — "whistle" — interference up to 3 kHz

away on either side and in any mode. And reduce interference it does, by -40 dB on the first of our two test units (although by only -30 dB on the second).

Points for Unusual Applications

As is the custom with Japan Radio receivers, the '525 utilizes diodes designed to protect the radio's innards against static damage. As a result, cross-modulation — characterized by signals appearing where they shouldn't be — tends to arise when the receiver is operated very near to powerful radio transmitters. In these unusual instances, this may be cleared up by having a service technician disable the diodes, then install in their place an effective replacement static-protection device, such as the Alpha-Delta "Transi-Trap".

For those living in very high signal areas, such as parts of Europe, it is worth noting that the '525's dynamic range, while very good, is such that under extreme conditions — e.g., the 49 meter band at night with a high-gain antenna — the '525 will be very slightly less resistant to overloading than are some other highly rated world radios. Otherwise, the '525's dynamic range is comfortably more than adequate for use on shortwave. Similarly, certain

laboratory measurements — of ultimate rejection and blocking — suggest that the '525, while well-suited to listening to world radio broadcasts, is not fully tailored either to professional applications or to the "DXing" of certain types of tough, distant mediumwave AM stations.

The Bottom Line

Do you need to spend over a thousand dollars to have a first-rate receiver for listening to shortwave broadcasts?

Of course not. You can make do very nicely with a Sony ICF-6800W, for example, which costs half as much. But there is no receiver other than the '525 we have tested that quite equals its combination of excellence of performance, reasonably good audio, "intelligent" hands-off operation, high-quality parts and assembly, flexibility, ease of operation...and just plain fun.

An unabridged, 20-page *RDI White Paper*, containing full laboratory measurements and other findings of interest to the current or prospective owner of the Japan Radio NRD 525, is available from Radio Database International.

COMING UP!

A vigorous rub of our crystal ball shows a number of juicy offerings expected to appear on the world radio market during 1987. Among these are...

KENWOOD R-5000/TRIO R-5000 \$800-1,000 range

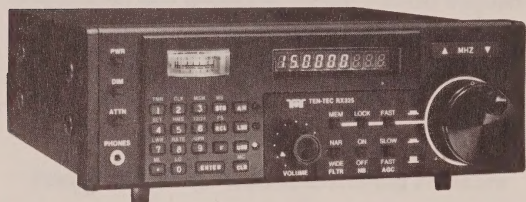
For some time, listeners have squawked because Trio-Kenwood has not been turning out world band radios that provide the same high level of performance as that found in the receiver sections of the Trio-Kenwood transceiver line sold to "hams".

The squeaky wheel gets the oil, so Kenwood will be responding by introducing the new R-5000 world-band radio sometime in early 1987. Among other things, it is to feature 100 memories programmable both by frequency and mode, keypad tuning, and a scanner. A variety of standard and optional bandwidths will be offered, as well.

The Kenwood R-5000 should perform similarly to the receiver section of the Kenwood TS-440S. If so, it will be of no small interest to serious world radio listeners.

TEN-TEC RX235 \$549.00

In mid-1986, we tested an early prototype of this frill-free US-made model, originally scheduled



Ten-Tec's New RX325, a US-Made Model

to be introduced shortly after our tests. We have not published our findings, however, as following the results of the RDI laboratory tests the manufacturer decided to redesign and upgrade various circuits and operating controls to improve performance and ease of operation.

As of presstime, the new date for introduction of the RX235 had not been specified. However, production is expected to commence sometime in the very near future.

LOWE HF-125 About £350 (equivalent to roughly \$450)

Untested by us as of presstime, the British-made HF-125 appears, "on paper", to be designed to provide above-average, but no-nonsense, performance with few frills at a price somewhere on the sunny side of most people's pocketbooks.

Introduction is expected to take place sometime during the first half of 1987.

SONY "X"...SONY "Y"...SONY "Z"

Tantalizing rumors from Japan suggest that Sony has at least one — perhaps as many as three — new models scheduled to be added to its world radio stable for 1987. High technology and advanced features are expected to be hallmarks of these models, one of which is likely to replace the discontinued CRF-1 portable (see "Guide to Portable World Receivers").

Introduction is expected to take place no later than early 1987.

Shortly after these models appear on the market, RADIO DATABASE INTERNATIONAL will conduct in-depth laboratory and "hands-on" tests to ascertain their worth. The full breadth of our findings and measurements will appear in separate *RDI White Papers*, which may be obtained from RDI dealers worldwide.

EXTERNAL ANTENNAS: DO THEY HELP?

There is a WW II movie, *Voice of Terror*, in which British sleuths struggle to overcome the effects of a German clandestine radio station. A hero of the film is none other than...a shortwave set. Not what we think of today as a world-band set. No, this was big — kind of a truck with dials.

That's what "real" shortwave receivers used to be like. They were fed by lengthy outdoor antennas resembling props from another movie — *The Web of the Giant Spider*. One of this genre was the "Zepp" — so-called because Zeppelin dirigibles trailed them a good 25 meters or yards across the sky. In fact, smile-a-mile antennas were once so commonplace that, even today, they're what spring to mind when oldtimers think of shortwave.

Unfortunately, the same people who today become curious about shortwave when they see today's handy, compact world-radio sets are still put off by the mistaken idea that they need to fill their back yard with enormous lengths of antenna wire.

Outdoor Antennas Usually Unnecessary

The truth is that the majority of world radio listeners need no antenna at all other than their radio's own built-in telescopic "whip". This sort of antenna works fine, so long as your set is reasonably sensitive and you are not into listening to flea-powered stations.

But if you are trying to snare faint stations — or if you live in a concrete/steel building — you should consider something fancier. Too, if you're using a first-rate communications receiver, you'll want an equally first-rate antenna so your receiver can reach its full potential.

Antennas for Simple Portables

What's your radio like? If you have one of those \$29.95 combination all-band/clock-radio/stir-the-soup models that can't even handle the signals coming in through its built-in antenna, all a fancy separate antenna is going to do is provide you with a gruesome result called "overloading"...a mish-mash of stations all heard at once because of your radio's dimstore innards. Either buy a better set or take up another pastime, such as collecting belly button lint.

But even costlier portables (some field portables excepted) often don't take kindly to high-gain external antennas. These radios were designed to work at their peak with built-in antennas, so a minimalist approach usually works best.

If you live in a house and have a portable that you'd like to coax a bit more out of, there's an easy solution. Run several meters or yards of just about any kind of insulated wire — doorbell wire is fine — through your listening room's window. Connect one end high up on a nearby structure or tree, the other end either to the set's external antenna input (if it has one) or directly to the built-in antenna, using a

garden-variety "alligator" clip such as is found at electronics parts stores.

Assuming the wire is plastic-coated, you can get away with tying it around a tree limb or whatever. But a much better solution is to isolate your antenna fully from the signal-absorbing tree or structure by using an insulator. Inexpensive ceramic or plastic insulators for this purpose can also be found at electronics parts stores. If your antenna is short and lightweight, an ordinary plastic hair curler will do.

Wrap the far end of your antenna wire through one of the holes in an insulator. Tie a piece of cord through the insulator's other hole, then wrap that cord around a high tree or structure.

Do the same thing at the antenna's near end, then run the antenna's lead-in wire to your set (or — better — its gas-type lightning arrestor), and you're ready to unearth the hard-to-hear secrets of world radio.

In any event, use common sense. Don't drape the thing under or over a 36,000-volt power line unless you're planning to do a circus audition for the role of Crispy the Cadaver. And forget trying to be a modern-day Ben Franklin. When there's lightning nearby, disconnect your antenna. And, if you have overhead power lines, unplug your radio, TV, computer and anything else you value.

If you're using a simple portable in a high-rise apartment, the best accessory antenna is an ordinary inexpensive automobile "whip" (there's no need to get anything fancier) available at auto supply stores.

But why buy an antenna that's just like the one already built into your radio?

The reason is simple. The concrete-and-steel walls of a high-rise building act as a "shield", keeping out radio signals. An outdoor accessory antenna is needed to catch signals *before* they are made faint by trying to pass through the building's outer walls.

Secure an automobile "whip" antenna firmly to your window frame or balcony railing so that it points away from the signal-absorbing building, like a flagpole, then run a wire from the antenna to your radio. This allows your set to be fed healthy outdoor signals unhampered by your building's metal-and-concrete shielding. If neighbors cast suspicious glances, hang a small flag from the antenna.

Worthy Receivers Need Worthy Antennas

Many high-quality receivers don't even come with built-in antennas, as radio engineers know that such elementary devices are inadequate for sophisticated receivers. So, even if your superset has its own antenna, you should contemplate something better.

Why? While simple portables can do only so much because of the cost of the components

crammed inside their tiny cases, costly receivers are often capable of superb performance. They can handle strong signals from high-gain antennas without "overloading", and in so doing improve the signal-to-noise ratios of the signals you hear.

Signal-to-noise ratios are important because increasing signal strength means little if you also increase background noise by a like amount. These noises can include the local variety — appliances, fluorescent lights, computers, dimmers, and the like — as well as "hiss" and other circuit noises within your receiver. The winning formula, then, is not just more signal strength, but less noise with respect to that signal strength. A well-located high-quality antenna improves signal-to-noise by capturing radio signals out in the fresh air, away from the home's environment of potentially noisy electrical wiring and appliances. And the stronger signals coming from a high-gain antenna into your set reduce the audibility of your set's own circuit noise.

Passive vs. Active Antennas

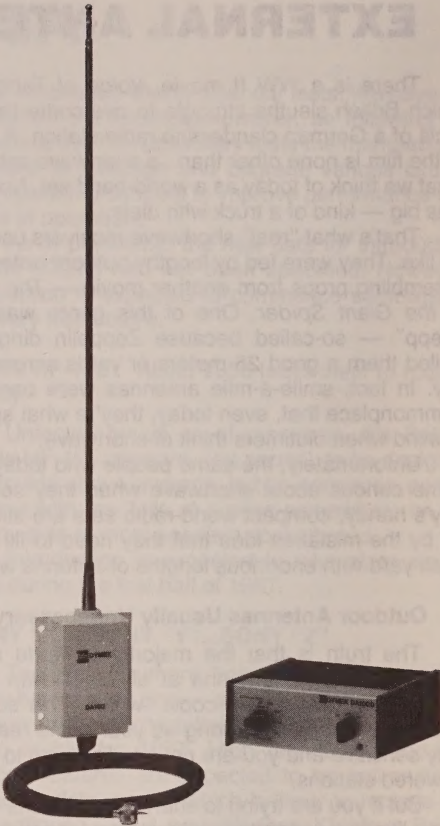
There are two basic types of antennas: "passive" and "active". A passive antenna consists of a healthy stretch of wire or other metal to provide a healthy signal directly to the receiver without the need for electrical amplification. An active antenna, on the other hand, typically uses a much shorter rod or wire, plus one or more stages of electrical amplification to make up for the relatively low signal gain of the stubby rod or wire.

Active antennas are convenient because they are compact. In apartments, this is ideal. Even some landed homeowners like them because they're easier to erect than are lengthy wire antennas.

But active antennas have three performance drawbacks. First, their short antenna elements fail to provide the signal-to-noise enhancement that comes when longer elements are used. Second, the antenna's amplifier can generate noise of its own. So, while there are some first-rate active antennas on the market today, these are not the antennas of choice except when installation of a first-rate passive antenna is not feasible. Third, many active antennas have mediocre front-end selectivity, and thus are prone to comingling signals from local AM or FM stations with those of world radio stations. This makes them inappropriate for use in the very urban areas in which apartment dwellers tend to be concentrated.

For the wise owner of high-quality receiving gear, there is really no choice — it's dictated by where he lives. An apartment dweller will go with an active antenna simply because there's no room outdoors to erect a long outdoor antenna.

As to the house dweller who can string up 10-20 meters or yards of outdoor wire antenna, he will find that a passive antenna provides results superior to those obtained by even the most elegant of active antennas. Quite simply, passive antennas have more exposed surface area and thus don't



McKay Dymek DA 100D Active Antenna

need potentially problematic electronic amplification in order to do their job.

The Best Shortwave Antennas

Best of the *active* antennas is the excellent, but relatively costly, McKay Dymek DA100D (Stoner



Top-Rated "Eavesdropper" Passive Antenna

Communications). Because of its superior front-end selectivity, it's particularly well-suited for use in tough urban or other areas where there are strong local AM or FM stations.

Also of interest are the KRS .AA-1 (Radio West), the MFJ-1024 (MFJ Enterprises) and the line of active antennas from Datong (Datong Electronics Limited). Additionally, a number of new active an-

tennas have appeared recently. Among these are the Palomar PA-351 (Palomar Engineers) and the Grove PRE3 (Grove Enterprises). Most sell for between \$100-160 in the US, usually more elsewhere.

Two of the best passive antenna types are the trap-dipole, such as the "Eavesdropper", and the inverted-L. See the accompanying antenna article for details.

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HOW TO CHOOSE AND INSTALL A FIRST-RATE OUTDOOR ANTENNA

It used to be that owning a shortwave radio also meant having to deal with an outside antenna. For decades, listeners were forced to risk their lives climbing tall ladders, braving the elements and risking getting tangled in hundreds of feet of unruly wire. Today, shortwave radios are so advanced that most not only don't need outside antennas — their performance can be reduced by them.

Buy or Build?

Once you've decided that you really want or need an outside antenna for your radio, you've got to decide whether you want to buy one or build it yourself. There are plenty of articles and books available on the subject, but the antennas recommended are almost always far more complicated than necessary and often based on designs originally intended for other applications (e.g., amateur radio or military transmissions). As a result, these books and articles are widely read, but rarely acted upon.

The vast majority of those who choose to erect an outdoor antenna opt for the classic "inverted-L" design. In the inverted-L, the antenna forms one leg and the cable connecting it to your receiver the other. It's inexpensive, covers the entire shortwave spectrum, and — if constructed and installed properly — can last for decades. Its measurements are noncritical, too, so if you want to build one you don't need a degree in electronics and a houseful of computers to do the job.

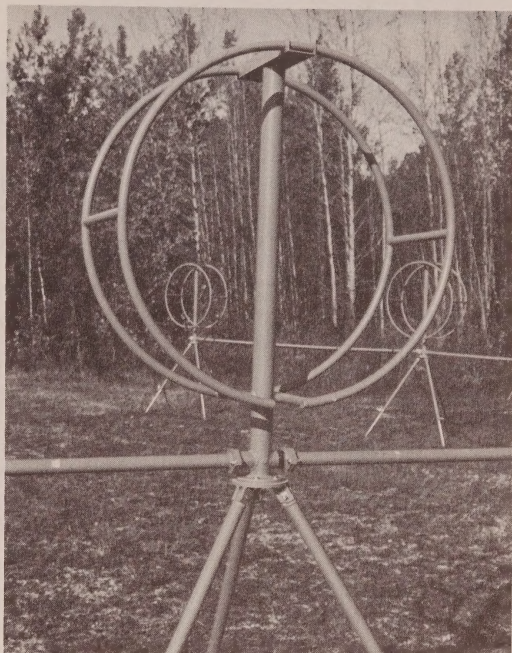
What the Pros Use

If you have ever have the pleasure of visiting an official shortwave monitoring site, you'll undoubtedly notice a wide variety of antenna types in use. For example, the Canadian government's monitoring site at Stittsville, Ontario makes use of three types: lengthy inverted-L antennas, a rotatable log-periodic antenna, and an innovative (and costly) Hermes Canadian-made configuration of hoop-shaped loop antennas. For best reception results, the no-nonsense veteran monitors at Stittsville prefer the exotic Hermes loop system, followed by the inverted-L's, and only lastly the one that, "on paper", should be best: the expensive and complex log periodic.

If You Buy...

For the listener who doesn't have \$25,000 to spend on his own Hermes loop system, or the land to construct it on, a properly designed trap dipole is the best choice. Unfortunately, it's just not practical to build such an antenna from scratch — it's too complicated. So if you want it, buy it.

The best of the lot is the "Eavesdropper". One of its plusses is that it resists rust, leakage and corrosion, and so keeps performing well as time goes by.



*Hermes Professional Loop Antennas
(Courtesy RCI)*

As for constructing your own antenna, there are two potential advantages.

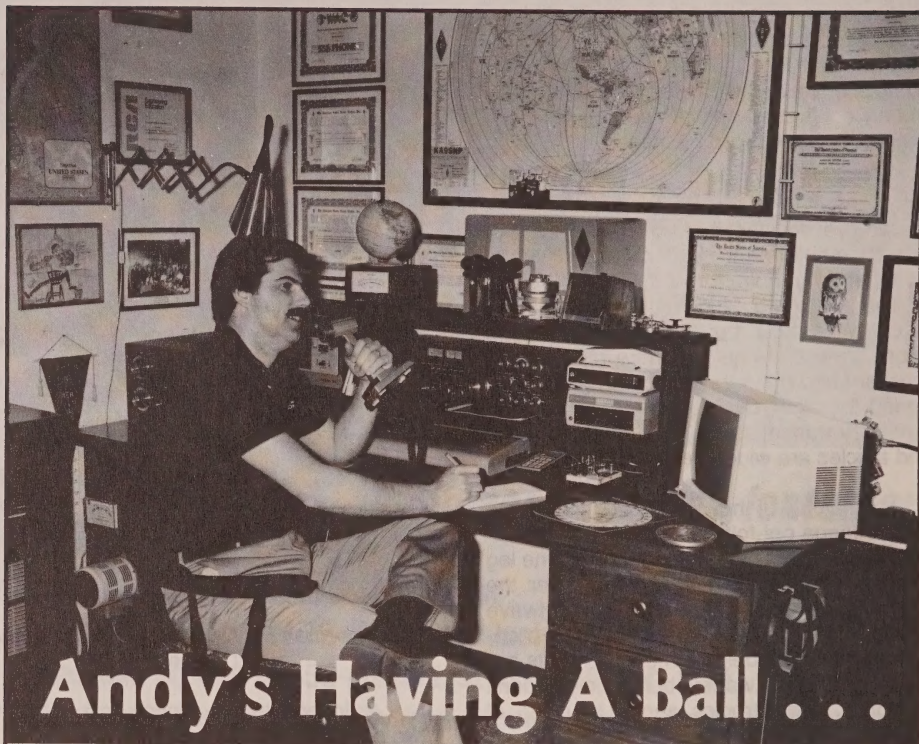
First, you can choose the quality of materials. This allows you to save money or optimize quality — but not both — as compared with what's available commercially.

Second, if you have a large spread of free land, you can erect some absolutely awesome antennas — up to 60 meters or yards long. These are much longer than those commercially available. If you use Copperweld wire, you can go for an even *longer* antenna. Tests at the RADIO DATABASE INTERNATIONAL monitoring facility in Pennsylvania show that such "longwire" inverted-L antennas provide a superior signal-to-noise ratio.

For example, one RDI inverted-L is 67 meters in length. This provides one wavelength for the 60, 49 and 41 meter bands; two wavelengths for the 31 and 25 meter bands; three wavelengths for the 19 and 21 meter bands, four wavelengths for the 16 meter band, and five wavelengths for the 13 meter band.

The inverted-L is such a simple antenna that many people construct their own from scrap parts and material available locally. However, inverted-L kits are commercially available for the equivalent of \$10-20. These are handy, inasmuch as all the parts are together in one package, ready to assemble.

In any case, the principles, hazards and donkey work of erecting an outdoor antenna are pretty



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much the same, regardless of whether the antenna is long or short, store-bought or home constructed. So read on, even if you are getting a ready-made antenna...

If You Build...

What Materials You'll Need

If you're purchasing a commercial antenna, it will have nearly everything you'll need to proceed with erection except a lightning protector and associated hardware. Still, if your antenna is even reasonably long, you may wish to consider the counterweight approach detailed below. This protects your antenna from excess stretching or breakage in bad weather — especially icestorms, which can make short work of an inflexible antenna.

Constructing an Inverted-L Antenna

If you're constructing an inverted-L antenna from scratch, you'll need the following:

- Copper antenna wire, unspliced, preferably 14 or 12 gauge. In principle, stranded is superior to solid; in practice, for receiving, any difference in results appear to be indiscernable. Insulated wire is superior for short antennas, but for most applications the lighter weight of uninsulated — or, better, "enameled" — wire makes it preferable.

Copperweld is a copper-clad steel wire. It has great tensile strength for long antennas (40+ meters or yards). However, it's springy stuff that's hard to work with, not unlike handling an unruly boa constrictor. Even worse, Copperweld can be rendered less effective by sharp kinks anywhere along the length of its copper-clad exterior, so treat this "snake" gently.

- Lead-in wire (or coaxial cable), unspliced. Simple weather-resistant insulated copper wire of about the same thickness as the antenna wire provides the greatest efficiency and makes a logical connection to your receiver's high-impedance input (if it has one).

There are pros and cons in making the decision whether to use insulated wire or coax. You'll lose more of the incoming signal using coaxial cable, but it can reduce noise if that noise emanates from near or within the room your radio is in — for example, from your radio's digital circuitry.

An inverted-L tends to have high impedance, whereas coaxial cable typically has low impedance (coaxial cable and modern receivers both typically have impedances of 50-75 ohms). The added mismatch of impedance brought about by coaxial cable can further exacerbate lead-in loss of signal. So unless you have a noise problem, ordinary single wire should work best.

- Coax-Seal (or silicon caulking) to protect outdoor connections from corrosion.
- Two sausage-shaped insulators, preferably ceramic, with one hole at each end. These should



*Advanced Lightning Protectors
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be strong enough to handle any anticipated strain, but remember that even small ceramic insulators have remarkable strength. Insulators the size of a link of breakfast sausage thus are usually more than sufficient for antennas of up to 35 meters or yards in length.

- An effective lightning and static protector. This is essential unless you live where there is no nearby lightning, no snow storms, and no sand storms...all of which generate static charges strong enough to send your radio — or you — to the clinic. These are manufactured by Alpha-Delta Communications, Inc., as well as the R.L. Drake Company. Beware the cheaper "spark-gap" lightning arrestors, such as the "Blitz Bug." These are fine for protecting tube-type equipment, electrical motors, and the like, but they let through too much static current to be used safely with most solid-state equipment.
- A copper-clad ground rod, at least 1.5 meters or 5 feet in length. A dedicated ground is needed both to reduce the chances of lightning damage and to minimize hum and noise in your radio.
- A length of ground wire, preferably copper, to run from your lightning protector to a ground rod.
- A cast (not strap) copper-clad or copper-alloy ground clamp suitable to be affixed to the ground rod. This and the preceding two items are available from any electrical supply house.
- Three connectors: two to go in and out of your lightning protector, a third to go into your radio's antenna input (that last connector usually comes with your radio as standard equipment).
- A suitable length of strong weather-resistant rope for "guying"; that is, connecting the antenna to trees or structures.
- A strong marine or other weatherproof pulley capable of turning freely after years of being exposed to the elements. It should be capable of handling the thickness of the aforementioned rope.
- Three strong, weather-resistant eyelets. These come either threaded for wood, threaded for nuts, or bracketed for flush mounting.
- Hefty brass — or at least plated — screws for any eyelets that may be flush-mounted.

—A sturdy, weatherproof ballast container with a single side-to-side metal handle on top. The container, which is to be used as a counterweight, needs to be suitable for holding stones, bricks, scrap metal or other ballast. In a pinch, a bucket will do. For long, heavy antennas a second container or bucket may be needed. If a bucket is used, heavy-gauge aluminum foil will also be needed in colder climates to act as a cover against weighty snow and ice accumulating inside.

Where to Obtain Antenna Materials

If you are fortunate enough to live near a ham radio store or electronics outlet carrying a wide variety of wiring, insulators and the like, you know where to head. Fortunately, in the US, there is a mail-order firm — Universal Radio — that carries just about everything imaginable for the wire antenna constructionist. They offer 14-gauge stranded copper wire, 12 gauge enameled solid copper wire, 14/12-gauge Copperweld, coaxial cable, coaxial-cable seal, insulators, connectors, ground wire, ground rods, ground clamps and Transi-Trap lightning protectors. About the only antenna parts they don't offer are weatherproof cable/rope, pulleys, eyelets and counterweights — all of which you should be able to obtain locally.

Tools You'll Need

- A sturdy ladder of suitable length.
- A long, flat screwdriver.
- Wire cutters or wire-cutting pliers.
- A soldering iron or gun of reasonable wattage.
- A hank of rosin-flux solder.
- A pocket knife to strip and clean wire for soldering.
- A sledge hammer to drive in the ground rod.
- Optional: A wood-screw starter or hand drill to make easier the insertion of wood eyelets or screws.

Precautionary Note

There are a number of potential pitfalls that go along with erecting antennas. It can be a risky business. Respect heights. Be careful of electrical wires. Use crepe or other rubber-sole/rubber-heel shoes, and don't work or walk on wet or other slick surfaces. If you are holding the ladder, don't stand directly underneath your partner, lest you be beamed by falling tools or parts...or even your falling partner. And above all, avoid setting up your antenna near power lines!

If you think this sounds Mickey Mouse, check with ham or CB groups to see how many of their members have spent time in the hospital — or worse — because of accidents while erecting antennas. If you have any doubt whatsoever about your ability to erect an antenna safely, either hire a tree man or other bonded professional to do the job, or make do with a simpler antenna.

Step-by-Step: How to Install Your Outdoor Antenna

1. Pick two distant points — one near your listening room — at which the ends of your new antenna are to be affixed. These and the line-of-sight between should be as far as possible from electrical power lines and other sources of noise. The antenna cannot be allowed to run under, over or near an electrical power line.

2. Thoroughly wash your hands with oil-free soap. Grungy hands degrade solder bonds.

3. Scrape clean 2 cm/1" of one end of the antenna wire and 2 cm/1" from one end of the lead-in wire.

4. Line up the cleaned ends in parallel with the wire tips facing in the same direction.

5. Using your hands and pliers, tightly twist together the two cleaned ends to form a "pigtail".

6. Solder the "pigtail". To solder properly, do not melt the solder by placing it against the iron or gun tip. Instead, place the hot iron or gun at one end of the cleaned "pigtail", then hold the solder against the other end of the "pigtail" about 2 cm/1" away. Thus, when the solder finally melts, it will flow smoothly throughout the entire preheated "pigtail". Remove the solder, then the iron or gun, and let nature cool off the joint for thirty seconds or so. Be patient — don't blow.

7. Stick this "pigtail", plus another several centimeters or few inches more of the wires, through a hole in an insulator. Depending on the insulator design (some have recesses for wrapping wires, some don't), either wrap and twist securely this wiring to the insulator or back over to the antenna wire itself. When you are through, there should be no tugging that can take place on the soldered "pigtail". Solder is to provide a secure electrical, not physical, connection.

8. Using Coax-Seal (or silicon caulking), cover the "pigtail" to protect the joint from moisture and air.

9. Cut a piece of weather-resistant rope to a length equal to the sum of the distance from the hook to the outer edge of the tree's branches, plus an amount equal to the anticipated outward growth of those branches over the years, plus another 30 cm/1 foot or so.

10. Pass one end of that piece of rope through the remaining hole in the insulator that is already connected to one end of the antenna. Secure the rope to the insulator, using a hangman's or other robust knot that tightens as the rope becomes taut.

11. At the mounting point nearer your listening room, affix an eyelet as high as possible. Keep in mind that if an inverted-L antenna slopes, the lower end will point to the direction favoring signals, adding to directivity.

12. Using the other end of the rope already affixed to the antenna, secure the rope to the mounted eyelet as in step 10.

13. Repeat step 11 for the remaining mounting point.

14. Cut a piece of weather-resistant rope just long enough to go through that eyelet and the eyehole of the pulley, leaving only a small gap between the eyelet and pulley.

15. Tie together the eyelet and pulley, leaving a small gap and using a robust knot that tightens as the rope becomes taut.

16. Pass the other end of the antenna wire through one end of the remaining insulator. Determine where you want the antenna to end, ensuring it will be well away from tree-branch tips even in the years of tree growth to come. Tighten the wire securely around the insulator and/or twist it over the antenna wire coming into the insulator.

17. Securely tie a substantial length of weatherproof rope to the remaining hole in the insulator.

18. Pass that rope through the pulley, then down to the ground.

19. Affix the remaining eyelet to a point about one meter or yard above the ground and directly below the eyelet connected to the pulley.

20. Pull the rope until the antenna is reason-

ably taut — not violin-string tight, yet not sagging unduly in the middle.

21. If your ballast container is a bucket, drill or puncture the bottom generously to create an exit for rainfall.

22. Tie your ballast container to the rope about 1 meter or yard from the ground. Fill the container with ballast until the antenna is just held taut by ballast alone. If the container is a bucket, cover it with heavy-gauge aluminum foil to keep out solid precipitation.

23. From the tie-point in the preceding step, leave a length of rope roughly equal to the height of the antenna. Cut the rope at this point, then secure the end to the eyelet one meter or yard above the ground. This will allow you to lower and raise the antenna in the future; e.g., to make repairs or dispatch obtrusive new tree growth.

24. Following the instructions that come with your radio and lightning protector, affix the necessary three connectors.

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SUMMARY OF WORLD BROADCASTING ACTIVITY

(Total Spectrum Occupancy in Hours per Week)

Fully 161 of the world's countries, from the giant Soviet Union to tiny Bhutan — plus various extralegal stations — broadcast within the world radio shortwave spectrum. This spectrum is divided into two parts: the Tropical bands from 2.2-3.9 and 4.0-5.73 MHz; and the International bands from 3.9-4.0 and 5.73-26.1 MHz.

Although the Tropical bands consist largely of broadcasts intended for domestic consumption, the nature of shortwave is such that they are often heard thousands of kilometers away.

The International bands consist mainly of powerful broadcasts intended for audiences abroad.

Nevertheless, many domestic stations operate here, as well, and also can be heard for great distances.

Jamming consists of deliberate interference directed against a broadcaster by those who do not wish the programs to be heard. The jammed hours given here are listed alongside the "victim" country, not the country actually doing the jamming.

Countries listed are those responsible for the broadcast material. Thus, Radio Moscow, for example, is listed under "USSR" whether it is aired from transmitters in the Soviet Union, Bulgaria, Cuba or whathaveyou.

Country	Tropical Hours	International Hours	Total Hours	Total Jammed
1 USSR	5342	34277	39619	None
2 USA	None	18544	18544	8613
3 CHINA (PR)	5236	12294	17530	957
4 BRAZIL	9805	5493	15298	None
5 PERU	4396	2990	7386	None
6 INDONESIA	4952	1736	6688	None
7 GERMANY (FR)	None	4732	4732	437
8 UNITED KINGDOM	None	4165	4165	688
9 ECUADOR	2353	1394	3747	None
10 KOREA (DPR)	1618	1907	3525	None
11 BOLIVIA	2165	936	3101	None
12 AUSTRALIA	645	2383	3028	None
13 INDIA	971	1972	2943	None
14 CHINA (TAIWAN)	258	2512	2770	1251
15 FRANCE	None	2511	2511	None
16 CANADA	None	2123	2123	None
17 MALAYSIA	539	1523	2062	None
18 VENEZUELA	1759	259	2018	None
19 GERMANY (DR)	None	1994	1994	None
20 COLOMBIA	1181	769	1950	None
21 PAPUA NEW GUINEA	1383	556	1939	None
22 ALBANIA	216	1661	1877	273
23 ISRAEL	None	1830	1830	832
24 JAPAN	None	1751	1751	None
25 EGYPT	None	1691	1691	None
26 SWITZERLAND	None	1660	1660	None
27 KOREA (REPUBLIC)	None	1554	1554	9
28 NIGERIA	355	1127	1482	None
29 SOUTH AFRICA	331	1109	1440	None
30 ITALY	None	1400	1400	None
31 HOLLAND	None	1342	1342	20
32 VIETNAM	212	1120	1332	None
33 PAKISTAN	231	995	1226	28
34 CUBA	168	1047	1215	None
35 POLAND	None	1200	1200	None
36 SPAIN	None	1137	1137	None
37 ALGERIA	None	1123	1123	None
38 CZECHOSLOVAKIA	None	1112	1112	None
39 BULGARIA	None	1111	1111	None
40 MONGOLIA	667	436	1103	None
41 HUNGARY	None	1088	1088	None
42 IRAN	52	1006	1058	668
43 SINGAPORE	252	783	1035	None
44 VATICAN STATE	None	1018	1018	None
45 AUSTRIA	60	945	1005	None
46 PHILIPPINES	None	997	997	None
47 ROMANIA	None	986	986	None
48 SAUDI ARABIA	None	970	970	None
49 ANGOLA	447	502	949	None
50 AFGHANISTAN	251	687	938	15
51 IRAQ	None	938	938	66
52 ARGENTINA	30	855	885	None
53 KUWAIT	None	833	833	None
54 SRI LANKA	298	512	810	None
55 COSTA RICA	292	464	756	None
56 TURKEY	None	756	756	1
57 MOZAMBIQUE	152	557	709	None

Country	Tropical Hours	International Hours	Total Hours	Total Jammed
58 LIBYA	None	658	658	115
59 SWEDEN	None	635	635	None
60 ZAMBIA	112	518	630	None
61 CHILE	None	619	619	None
62 GUATEMALA	493	110	603	None
63 THAILAND	106	472	578	None
64 COLOMBIA	266	309	575	None
65 UNITED ARAB EMIRATES	None	564	564	None
66 GREECE	None	557	557	3
67 YEMEN (PDR)	113	413	526	None
68 TANZANIA	185	340	525	None
69 CAMEROON	231	294	525	None
70 MOROCCO	None	525	525	None
71 PORTUGAL	None	524	524	None
72 BELGIUM	None	498	498	None
73 CLANDESTINE (ASIA)	166	325	491	80
74 YUGOSLAVIA	None	483	483	None
75 FINLAND	None	474	474	None
76 GABON	139	309	448	None
77 SOCIETY ISLANDS	None	448	448	None
78 NICARAGUA	None	385	385	None
79 CLANDESTINE (AFRICA)	97	286	383	199
80 TUNISIA	None	373	373	None
81 CLANDESTINE (C AMER)	50	322	372	96
82 URUGUAY	None	366	366	None
83 CLANDESTINE (M EAST)	181	184	365	262
84 NORTHERN MARIANA IS	None	362	362	None
85 HONDURAS	236	119	355	None
86 GUINEA	101	254	355	None
87 SYRIA	None	353	353	232
88 BOTSWANA	164	184	348	None
89 LIBERIA	156	189	345	None
90 SWAZILAND	115	228	343	None
91 NAMIBIA	337	None	337	None
92 BANGLADESH	63	267	330	None
93 NORWAY	None	316	316	None
94 OMAN	None	314	314	None
95 LAOS	61	248	309	None
96 ZAIRE	115	193	308	None
97 MALAWI	90	212	302	None
98 LUXEMBOURG	None	297	297	None
99 SENEGAL	55	238	293	None
100 NIGER	115	173	288	None
101 GHANA	232	40	272	None
102 MADAGASCAR	164	105	269	None
103 GUAM	None	268	268	None
104 UNIDENTIFIED	None	267	267	156
105 JORDAN	None	256	256	None
106 TOGO	155	100	255	None
107 MALI	47	207	254	None
108 ETHIOPIA	None	234	234	3
109 MONACO	None	229	229	27
110 YEMEN (REPUBLIC)	None	226	226	None
111 VANUATU	None	224	224	None
112 KENYA	115	101	216	None
113 SEYCHELLES	None	206	206	None
114 MEXICO	49	154	203	None

Country	Hours	Tropical International Hours	Total Hours	Total Jammed
115 SOLOMON IS	126	77	203	None
116 QATAR	None	192	192	None
117 SUDAN	126	64	190	None
118 IVORY COAST	None	189	189	None
119 FRENCH GUIANA	107	77	184	None
120 LESOTHO	133	46	179	None
121 EQUATORIAL GUINEA	55	119	174	None
122 PARAGUAY	None	172	172	None
123 COOK ISLANDS	None	168	168	None
124 CLANDESTINE (N AMER)	None	168	168	None
125 UGANDA	85	81	166	None
126 ZIMBABWE	22	143	165	None
127 CHAD	127	32	159	None
128 NEW ZEALAND	None	156	156	None
129 NEW CALEDONIA	36	119	155	None
130 BURMA	51	101	152	None
131 SOMALIA	None	151	151	None
132 SURINAME	147	3	150	None
133 DOMINICAN REPUBLIC	None	150	150	None
134 FALKLAND ISLANDS	74	74	148	None
135 NEPAL	147	None	147	None
136 ANTARCTICA	None	146	146	None
137 GUYANA	None	134	134	None
138 BELIZE	133	None	133	None
139 BURKINA FASO	78	52	130	None
140 SIERRA LEONE	None	130	130	None
141 MAURITIUS	42	84	126	None
142 HAITI	125	None	125	None
143 BURUNDI	73	51	124	None

Country	Hours	Tropical International Hours	Total Hours	Total Jammed
144 LEBANON	None	122	122	None
145 GREENLAND	None	120	120	None
146 NETHERLANDS ANTILLES	None	113	113	None
147 RWANDA	109	None	109	None
148 CYPRUS	None	108	108	None
149 KAMPUCHEA (CAMBODIA)	None	108	108	None
150 CLANDESTINE (EUROPE)	None	107	107	None
151 RWANDA	None	105	105	None
152 BENIN	104	None	104	None
153 MAURITANIA	63	39	102	None
154 DENMARK	None	92	92	None
155 LESOTHO	None	87	87	None
156 DJIBOUTI (JIBUTI)	83	None	83	None
157 COMOROS	35	46	81	None
158 CENTRAL AFRICAN REP	72	None	72	None
159 CAPE VERDE	None	71	71	None
160 IRELAND	None	70	70	None
161 KIRIBATI	None	51	51	None
162 PIRATE (S AMERICA)	15	33	48	None
163 MALTA	None	34	34	None
164 ICELAND	None	24	24	None
165 BHUTAN	18	3	21	None
166 TRISTAN DA CUNHA	15	None	15	None
167 TANZANIA	None	14	14	None
168 PIRATE (PACIFIC)	None	3	3	None
169 CLANDESTINE (S AMER)	None	2	2	None
170 SAO TOME E PRINCIPE	1	None	1	None
171 UNITED NATIONS	None	1	1	None

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THE RDI PHOTOFILE



World radio: the battleground of ideas. France's former minister of agriculture, Michael Rocard (left) is interviewed by Victor Andriananjason for broadcast over the United Nations' network of stations.



WRNO Worldwide brought listeners live coverage of the entertainment events at the World's Fair in New Orleans.



Dave Rosenthal hosts the astronomy program Skyline, part of the daily Radio Earth broadcast on WHRI.



U.S. talk show host Larry King also conducts an international telephone call-in show on the Voice of America.



Radio Canada International's Ian McFarland at the site of Radio Milano International in Italy.

HUGE

70 PAGE

SHORTWAVE CATALOG

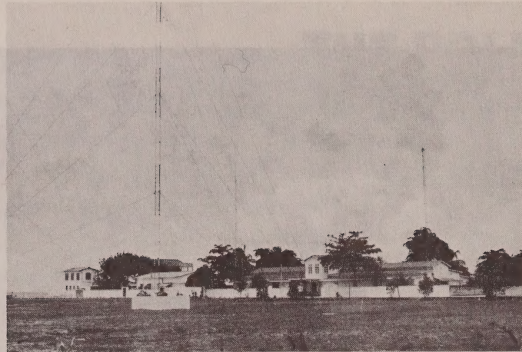
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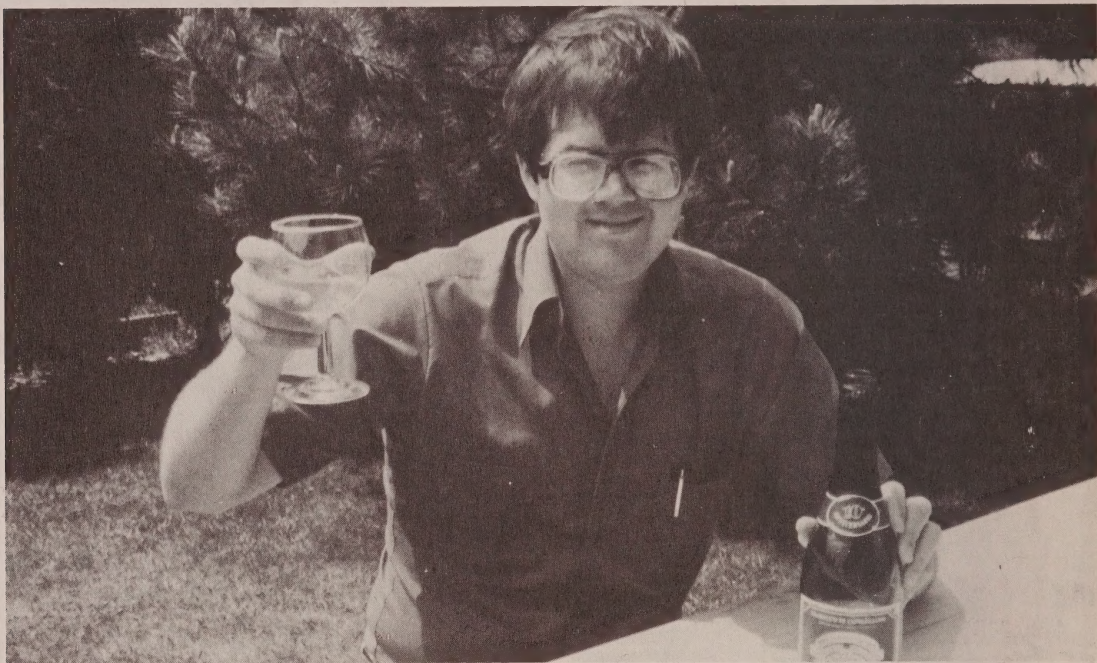
UNIVERSAL SHORTWAVE RADIO
1280 Alda Drive
Reynoldsburg, Ohio 43068
Phone 614-866-4267



Every year, several stations leave and return to the shortwave bands, adding to the panorama of news, views and entertainment. The voice of the Maldives, above, is currently off the air.



The radio and television building, located on the Nile River in Cairo, is the home of Radio Cairo, Egypt's international radio station.



Jeff White, formerly of Radio Earth International and now vice president of World Radio Network, S.A. (Radio Clarin, Radio Discovery) toasts his listeners.



Willis Conover, host of the VOA's long-running jazz show, is virtually unknown in his home town of Washington, D.C. When visiting Eastern Europe, however, his plane is often met by mobs of listeners.



Tom Meyer is host of Radio Netherland's popular weekly musical variety show, Happy Station. The show first came on the air in the 1920's.

LEXICON OF TERMS

Alt—Alternative Frequency: Frequency that may be irregularly or unexpectedly brought into use in lieu of the regularly scheduled frequency.

AV—A Voz.

BC—Broadcasting, Broadcasting Company, Broadcasting Corporation.

BS—Broadcasting Service, Broadcasting Station.

Cd—Ciudad.

Channel—The norm for channel spacing within the shortwave broadcasting spectrum is 5.0 kHz. A small proportion of stations does not operate within this norm, so RDI provides frequency resolution to better than one kHz to aid in station location and identification.

Cl—Club, Clube.

Country—Country designations of officially recognized nations are those of the International Telecommunication Union. Unofficial broadcasters and geographical entities are included for reference purposes only and do not imply endorsement or recognition by IBS or the ITU.

Cu, Cult—Cultura, Cultural, Culture.

(D)—Winter schedule only.

DS—Domestic Service.

Ed, Educ—Educational, Educação, Educadora.

Em—Emissora, Emisora, Emissor, Emetteur.

EP—Emissor Provincial.

ER—Emissor Regional.

ES—External Service.

F—Friday.

Fade-in, Fade-out—If the RDI monitoring team cannot establish the definite sign-on (or sign-off) of a station, the earliest (or latest) time the station could be traced is entered, instead, as the fade-in (or fade-out) time.

Feeder, shortwave—A Fixed service (point-to-point) transmission, usually in single or independent sideband mode, beamed to a relay site. Although not intended for reception by the public, shortwave feeder transmissions, which can be received on better communications receivers, sometimes provide the best or only means for reception of a particular broadcaster at a given time. For this reason, selected shortwave feeder data is included in RDI, even though any given actual useage may be irregular. Transmission modes for shortwave feeders are:

LSB—Lower Sideband (single-sideband signal)

ISL—Lower Sideband (of independent-sideband signal)

USB—Upper Sideband (single-sideband signal)

ISU—Upper Sideband (of independent-sideband signal)

RAM—Double Sideband, Reduced Carrier signal

FR—Federal Republic.

Frequency—The measurement most widely accepted to indicate the location of a station within

the radio spectrum. Frequency is most often expressed in kilohertz (kHz) or Megahertz (MHz), although wavelength is still used in Eastern Europe and certain other parts of the world. The frequency of a station may be determined from the wavelength via the following formula: Frequency (kHz) = 299,792/Wavelength (Meters). Also, cf. "Wavelength" and "Channel".

Irr—Irregular operation or hours of operation; i.e., schedule tends to be unpredictable.

Is—Island(s).

(J)—Summer schedule only.

Jamming—Deliberate interference to a transmission with the intent of making reception impossible. The vast majority of jamming currently emanates from the Soviet Union and its Eastern European allies and is directed against broadcasts in Armenian, Azerbaijani, Belorussian, Bulgarian, Czech, Estonian, Georgian, Hebrew, Latvian, Lithuanian, Polish, Russian, Slovak, Tatar-Bashkir, Turkistani, Ukrainian, and Yiddish. Soviet/Eastern European jamming consists largely of a sound not unlike that of a roomful of truck or lorry engines roaring away. Coded messages appear now and then amidst the roaring, and in some instances distorted programming from the Soviet "Mayak" (DS-2) home service is mixed in, as well. One means to cope with jamming interference is to determine which bands are most likely to provide good reception from the part of the world you wish to hear, while at the same time are not likely to provide good reception from the Soviet Union and Eastern Europe. Directional antennas also can improve the signal-to-jamming ratio under certain circumstances.

kHz—Kilohertz (cf. Frequency).

kW—Kilowatt(s) (cf. Power).

Loc—Local.

Location—The physical location of the transmitter/antenna complex. This location may not correspond to the location of the studios in which the broadcasts are prepared. Data on location names are derived, in most instances, from the Map Section of the 1983 Comprehensive Edition of *The Times Atlas of the World*. As transmitter complexes of major international broadcasters are sometimes located in sparsely populated areas, the exact transmitter site may be up to several kilometers from the location indicated. Those in need of precise transmitter geographical coordinates should contact the Publications Department of the ITU.

LV—La Voix, La Voz.

M—Monday.

MHz—Megahertz (cf. Frequency).

Multilingual—A combination of any "graphics language" (Arabic, Chinese, English, French, German, Japanese, Portuguese, Russian, Spanish) with another language. Thus, a transmission in English and Urdu would be designated as Multi-

lingual, rather than English, whereas a transmission in Tamil and Urdu would be designated as Other.

N—New, Nueva, Nuevo, Nouvelle, Nacional, National.

Nac—Nacional.

Nat, Natl—National, Nationale.

Network—The network or service of a broadcast. Domestic Service transmissions are always so indicated by "DS".

Non-AM Mode—Transmission in other than the conventional double-sideband-with-carrier ("AM") mode (see "Feeder, shortwave" for list of non-AM modes).

PBS—People's Broadcasting Station.

Power—RF output power, i.e. before amplification by the antenna, in kilowatts (kW). The present range of powers in use for shortwave broadcasting is 0.04-600 kW.

PR—People's Republic.

PS—Provincial Station, Pangsong.

Pto—Puerto, Pôrto.

R—Radio, Radiodiffusion, Radiodifusora, Radiodifusão, Radiofonikos, Radiostansiya, Radyo, Radyosu, etc.

Reg—Regional.

Relay—Extraterritorial transmission facility, usually fed by recording, satellite, or shortwave feeder (cf.).

Rep—Republic, République, Republica.

RT, RTV—Radiodiffusion Télévision, Radio Télévision, etc.

RN—Cf. R and N.

RS—Radio Station, Radiostantsiya, Radiofonikos Stathmos.

S—San, Santa, Santo, São, Saint.

Sa—Saturday.

Shortwave Spectrum—The shortwave, or High-Frequency, spectrum is that portion of the radio spectrum that lies between 3-30 MHz (3,000-30,000 kHz); however, common useage places the shortwave spectrum between roughly 2-30 MHz. Although broadcasting takes place throughout the shortwave spectrum (between-band broadcasting is known as "out-of-band" broadcasting, which is sometimes permitted under the Rules and Regulations of the ITU), the recently-adopted—but not yet fully implemented—nominal ITU shortwave broadcasting band parameters are (worldwide unless otherwise indicated):

120 Meter Band:

2300-2498 kHz (Tropical Domestic Broadcasting only)

90 Meter Band:

3200-3400 kHz (Tropical Domestic Broadcasting only)

75 Meter Band:

3900-3950 kHz (Asia & Pacific only)
3950-4000 kHz (except Americas)

60 Meter Band:

4750-4995 kHz (Tropical Domestic Broadcasting only)
5005-5060 kHz (Tropical Domestic Broadcasting only)

49 Meter Band:

5950-6200 kHz

41 Meter Band:

7100-7300 kHz (except Americas)

31 Meter Band:

9500-9900 kHz

25 Meter Band:

11650-12050 kHz

21 Meter Band:

13600-13800 kHz

19 Meter Band:

15100-15600 kHz

16 Meter Band:

17550-17900 kHz

13 Meter Band:

21450-21850 kHz

11 Meter Band:

25670-26100 kHz (25600-26100 kHz until 7/89)

St—Saint.

Sta—Santa.

Sto—Santo.

Su—Sunday.

Target—The international geographical entities to which a transmission is beamed, provided it is intended to be heard outside the country. Targets are as follows:

AF—Africa

AM—Americas

ANZ—Australia & New Zealand

AS—Asia

ATL—Atlantic

CA—Central America, Carribean & Mexico

CAF—Central Africa

EAF—Eastern Africa

EAS—Eastern Asia

EEU—Eastern Europe

ENA—Eastern North America

EU—Europe

EUSSR—Eastern USSR

ME—Middle East

NA—North America

NAF—Northern Africa

PAC—Pacific

SA—South America

SAF—Southern Africa

SAS—Southern Asia

SEA—South-East Asia

USSR—USSR

WAF—Western Africa

WEU—Western Europe

WNA—Western North America

WUSSR—Western USSR

(+) Tent—Tentative, i.e. uncertain of accuracy of certain listed details, e.g. exact station name.

Th—Thursday.

Tu—Tuesday.

UTC—Coordinated Universal Time, a/k/a Greenwich Mean Time (GMT) or Zulu (Z): the 24-hour international broadcasting reference, based on the time standard of the Greenwich Observatory in the U.K. The difference between UTC and local time may be determined by listening for routine UTC announcements aired by international

broadcasters. Some shortwave radios and digital watches come equipped with a 24-hour time standard to eliminate the necessity to convert local time to UTC.

V—Variable frequency, i.e. one that is unstable or drifting.

Vo—Voice of.

W—Wednesday.

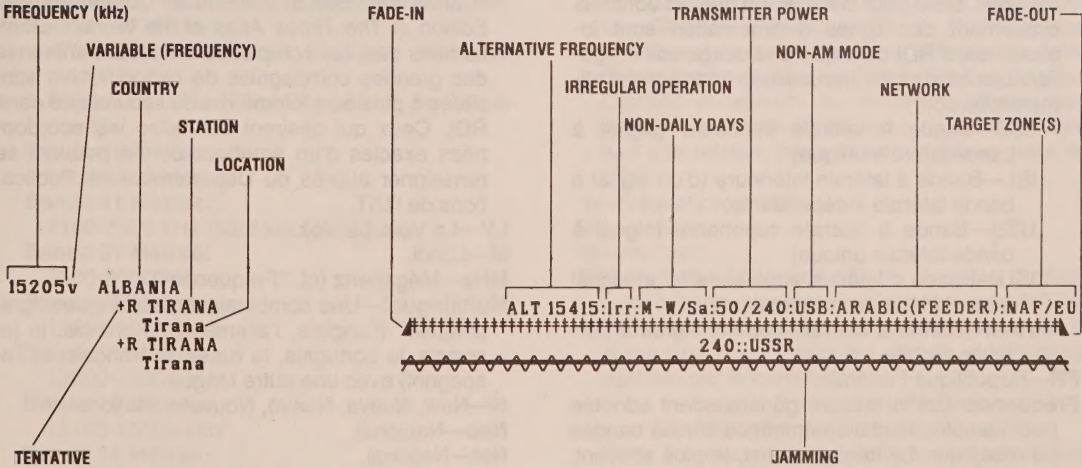
Wavelength—A vintage alternative to Frequency

(cf.) to express the location of a station within the radio spectrum. The wavelength of a station may be determined via the following formula: Wavelength (Meters) = 299,792/Frequency (kHz). This formula may also be used to ascertain the metre band of a particular station (cf. Shortwave Spectrum).

WS—World Service.

For countries where savings time is used, schedules may vary by an hour during winter.

GUIDE TO GRAPHICS FORMAT



LEXIQUE

Alt—Alternative.

AV—A Voz.

BC—Broadcasting, Broadcasting Company, Broadcasting Corporation.

BS—Broadcasting Service, Broadcasting Station.

Cd—Ciudad.

Canal—La norme pour l'espace réservé à un canal est de 5 kHz. Un petit nombre de stations ne suivent pas cette norme. Pour cela, RDI publie une résolution de fréquence supérieure à un kilohertz afin de faciliter l'identification de la station émettrice.

Cl—Club, Clube.

Cu, Cult—Cultura, Culture.

(D)—Horaire uniquement pour l'hiver.

DS—Service Local.

Em—Emissora, Emisora, Emissor, Emetteur.

EP—Emetteur Provincial.

ER—Emetteur Régional.

Fade-in, Fade-out—Debut et fin d' Ecoute—Si les moniteurs qui suivent les stations de radiodiffusion ne peuvent pas établir, d'une manière certaine, les débuts ou les fins d'émission, ils fournissent à **Database** les horaires les plus tôt (pour le début) et les plus tard (pour la fin) des émissions qu'ils ont pu entendre sur la station en question.

F—Vendredi.

Feeder, Shortwave—Ligne d'alimentation, ondes courtes. Consiste en une émission d'un point fixe à un autre, généralement en bandes latérales indépendantes ou bandes latérales uniques, dirigée vers un relais à partir d'un pays ou se situe la station de radiodiffusion. Bien que cette méthode de transmission ne soit pas destinée à être captée par le public, les transmissions d'ondes courtes par ligne d'alimentation peuvent être captées par certains récepteurs qui permettent parfois un meilleur, ou même le seul, moyen de recevoir certaines émissions pendant certaines périodes. C'est pour cette raison que les données concernant des lignes d'alimentation sont incluses dans RDI bien que leur usage soit irrégulier. Les modes de transmission par ligne d'alimentation sont:

LSB—Bande à latérale inferieure (signal à bande latérale unique)

ISL—Bande à latérale inferieure (d'un signal à bande latérale indépendante)

USB—Bande à latérale superieure (signal à bande latérale unique)

ISU—Bande à latérale superieure (d'un signal à bande latérale indépendante)

RAM—Bande à latérale double, signal à portee reduite.

FR—République Fédérale.

Fréquence: Est la mesure généralement adoptée pour identifier la station émettrice sur les bandes du récepteur. La fréquence est, le plus souvent, exprimée en kilohertz ou en Mégahertz, bien que les longueurs d'ondes soient encore utilisées en

Europe et dans certains autres pays. Les longueurs d'ondes sont exprimées en mètres. Les formules suivantes permettent de passer d'une mesure à l'autre:

Fréquence en kilohertz = 299,792/Longueur d'onde en mètres.

Irr—Opération ou heures d'opération irrégulières.

Is—Iles.

(J)—Horaire uniquement pour l'été.

Jamming—Brouillage—Interférence provoquée délibérément pour rendre la réception soit impossible, soit très difficile. La grande majorité des brouillages provient de l'Union Soviétique ou des pays de l'Europe de l'Est et est dirigée contre des émissions en arménien, azerbaïdjan, biellorusse, bulgare, estonien, géorgien, hébreu, latvien, lituanien, polonais, russe, slovaque, tatar-bashkir, tchèque, turkestan, ukrainien et yiddish. Les brouillages en provenance de l'URSS et de l'Europe de l'Est produisent un bruit similaire à des ronflements des moteurs. De temps à autre, des messages codés ou même des programmes altérés provenant du service "Mayak" (DS-2) de l'URSS apparaissent parmi ces brouillages. L'un des moyens de surmonter ces difficultés de réception est d'utiliser les bandes les plus susceptibles de donner une bonne réception du pays que vous désirez écouter et qui, aux mêmes heures, ont le moins de possibilité de donner une bonne réception de l'Union Soviétique ou des pays de l'Europe de l'Est. Une antenne directionnelle peut, dans certaines conditions, améliorer le rapport signal/brouillage.

kHz—kilohertz (cf. "Fréquence").

kW—kilowatt (s), (cf. "Puissance").

Location—Le lieu ou est situé le complexe émetteur/antenne. Ce "site" ne correspond pas nécessairement à celui des studios qui préparent les programmes. Les sites publiés par RDI proviennent, dans la plupart des cas, de la partie "Cartes" de l'Edition 1983 de la "Comprehensive Edition of *The Times Atlas of the World*". Dans certains cas, les complexes émetteurs/antennes des grandes compagnies de radiodiffusion sont situés à plusieurs kilomètres du lieu indiqué dans RDI. Ceux qui désirent connaître les coordonnées exactes d'un émetteur donné peuvent se renseigner auprès du Département de Publications de l'UIT.

LV—La Voix, La Voz.

M—Lundi.

MHz—Mégahertz (cf. "Fréquence").

Multilingual—Une combinaison des langues "graphiques" (l'anglais, l'allemand, le chinois, le japonais, le portugais, la russe, le français, et l'espagnol) avec une autre langue.

N—New, Nueva, Nuevo, Nouvelle, National.

Nac—Nacional.

Nat—National.

Network—Chaîne ou Service Ondes Courtes. En dehors de désignations évidentes

telles que "Service Mondial". Les services locaux d'ondes courtes sont indiqués par "DS."

Pays—Les noms de pays publiés dans RDI sont ceux spécifiés par l'UIT. Certaines stations non-officielles et autres entités géographiques sont incluses pour référence mais n'indiquent d'aucune manière l'endossement ou la reconnaissance de ces stations de la part, soit de IBS, soit de UIT.

PBS—Station national ou local de Radiodiffusion de la République populaire de Chine.

Power—Puissance—La puissance RF d'émission en kilowatts avant l'amplification par l'antenne. Actuellement, les puissances utilisées en émission se situent entre 0,04 et 600 kW.

PR—République Populaire.

Pto—Puerto.

R—Radio, Radiodiffusion, Radiodiffusora, Radiodifusão, Radiostantsiya, Radyo, Radyosu, etc.

Relais—Est une installation extraterritoriale généralement alimentée par des enregistrements, par satellite ou par ligne d'alimentation, ondes courtes.

Rep—République.

RTV—Radiodiffusion Télévision.

RN—Cf. R and N.

S—Sa, Santa, Santo, São, Saint.

Spectre Ondes Courtes—Le spectre ondes courtes ou haute fréquence est la partie du spectre radiodiffusé entre 3 et 30 Mhz (3.000-30.000 kHz); cependant, l'usage le plus fréquent est approximativement entre 2 et 30 MHz. Bien que les radiodiffusions aient lieu sur toutes les bandes ondes courtes, les bandes désignées par UIT pour la radiodiffusion ondes courtes sont: (Mondialement à moins qu'il e soit indiqué autrement):

Bande 120 Mètres:

2300-2498 kHz (Zones tropicales exclusivement).

Bande 90 Mètres:

3200-3400 kHz (Zones tropicales exclusivement).

Bande 75 Mètres:

3900-3950 kHz (Asie et Pacifique seulement).
3850-4000 kHz (à l'exception des Amériques).

Bande 60 Mètres:

4750-4995 kHz (Zones tropicales exclusivement).
5005-5060 kHz (Zones tropicales exclusivement).

Bande 49 Mètres:

5950-6200 kHz

Bande 41 Mètres:

7100-7300 kHz (sauf les Amériques)

Bande 31 Mètres:

9500-9900 kHz

Bande 25 Mètres:

11650-12050 kHz

Bande 21 Mètres:

13600-13800 kHz

Bande 19 Mètres:

15100-15600 kHz

Bande 16 Mètres:

17550-17900 kHz

Bande 13 Mètres:

21450-21850 kHz

Bande 11 Mètres:

25670-26100 kHz (25600-26100 kHz jusqu'à 7/89)

Sta—Santa.

Sto—Santo.

Su—Dimanche.

Objectif—L'entité internationale vers laquelle l'émission est dirigée, avec l'intention que l'émission soit entendue à l'étranger. Les objectifs sont les suivants:

AF—Afrique.

AM—Amériques.

ANZ—Australie et Nouvelle-Zélande.

AS—Asie.

ATL—Atlantique.

CA—Amérique Centrale, les Caraïbes et le Mexique.

CAF—Afrique Centrale.

EAF—Afrique de l'Est.

EAS—Asie de l'Est.

EEU—Europe de l'Est.

ENA—L'Est de l'Amérique du Nord.

EU—Europe.

EUSSR—Partie Est de l'URSS.

ME—Moyen Orient.

NA—Amérique du Nord.

NAF—Afrique du Nord.

PAC—Pacifique.

SA—Amérique du Sud.

SAF—Région sud Africaine

SAS—Sud de l'Asie.

SEA—Sud-Est de l'Asie.

USSR—URSS.

WAF—Afrique de l'Ouest

WEU—Europe de l'Ouest.

WNA—Ouest de l'Amérique du Nord.

WUSSR—Ouest de l'URSS.

Th—Jeudi.

Tu—Mardi.

UTC—Heure Universelle Coordonnée: Heure Internationale de référence pour les radiodiffusions, basée sur l'heure standard du méridien de l'Observatoire de Greenwich (GMT) en Angleterre. Les Chaînes Internationales de Radiodiffusion annoncent régulièrement la différence entre l'heure locale et l'Heure Universelle Coordonnée. Certains récepteurs ou montres digitales sont munis d'un cadran 24-heures qui permet de connaître la relation entre l'heure locale et celle de UTC.

V—Fréquence variable.

Vo—Voix de.

W—Mercredi.

Wavelength—Longueur d'Onde. Exprime la place qu'occupe une station sur le spectre radiodiffusé. Un terme maintenant moins souvent utilisé que le terme fréquence. Longueur d'onde et fréquence sont liés par la formule:

Longueur d'onde en Mètres =

299,792 divisé par la fréquence en kHz.

Cette formule peut, naturellement, être utilisée pour déterminer la Bande en Mètres d'une station.

WS—Service Mondial.

LÉXICO DE TÉRMINOS

Alt—Frecuencia alternativa: una frecuencia cuyo uso sea imprevisto o irregular y en lugar de la frecuencia asignada.

AV—A Voz.

BC—Broadcasting, Broadcasting Company, Broadcasting Corporation.

BCS, BS—Broadcasting Service, Broadcasting Station.

Cd—Ciudad.

Channel—Canal. La norma para la separación de canales dentro de la gama de radiodifusión de onda corta es de 5.0 kHz. Un pequeño porcentaje de estaciones no opera dentro de esta norma, así que el RDI proporciona resolución de frecuencia de menos de un kilohertz, para facilitar la ubicación e identificación de las estaciones.

Cl—Club, Clube.

Country—País. Las designaciones, en el caso de las naciones oficialmente reconocidas, son las de la Unión Internacional de Telecomunicaciones. Emisoras y entidades geográficas no oficiales se incluyen para los fines de referencia y no presupone ningún apoyo o reconocimiento por parte de la IBS o UIT.

Cu, Cult—Cultura, Cultural, Culture.

(D)—Indica que los detalles refieren solamente al período "D" que corresponde al invierno en el hemisferio del norte y al verano en los países del sur.

DS—Domestic Service (Servicio Doméstico).

Ed, Educ—Educação, Educadora.

Em—Emissora, Emisora, Emissor, Emetteur.

EP—Emissor Provincial.

ER—Emissor Regional.

ES—External Service (Servicio al Exterior).

F—Friday (Viernes)

Fade-in, Fade-out—Si el equipo de monitores del RDI no puede establecer definitivamente el comienzo (o fin) de una transmisión, se entra en cambio la hora más temprana (o tarde) en que pudo rastrearse la estación, eso es, la hora del 'fade-in' (o 'fade-out').

Feeder, shortwave—Una transmisión de servicio fijo (punto a punto) usualmente en modo de banda lateral única o independiente, dirigida a la estación de redifusión desde el país de origen de la transmisión. Aunque no destinadas para la recepción general, las transmisiones de eslabón de onda corta, que pueden ser recibidas por los mejores receptores de comunicaciones, a veces proporcionan la mejor o única oportunidad para la recepción de una emisora determinada a una hora dada. Por esta razón se incluyen en el RDI datos sobre esta tipo de transmisión, aunque el uso actual no sea regular. Los modos de transmisión para los eslabones de onda corta son:

LSB—Banda lateral inferior (señal banda lateral única)

ISL—Banda lateral inferior (de una señal banda lateral independiente)

USB—Banda lateral superior (señal banda lateral única)

ISU—Banda lateral superior (de una señal banda lateral independiente)

RAM—Banda lateral doble, con la portadora reducida.

FR—Federal Republic (República Federal)

Frequency—Frecuencia. La medida más ampliamente aceptada para indicar la ubicación de una estación dentro de la gama radial. La frecuencia se expresa más a menudo en kilohertz (kHz) o Megahertz (MHz), aunque la longitud de onda se utiliza todavía en Europa oriental y algunas otras partes del mundo. La frecuencia de una estación puede determinarse de la siguiente fórmula:

Frecuencia (kHz) = $299,792 \div \text{Longitud de onda (metros)}$.

Vease también 'Wavelength' y 'Channel'.

Irr—Operación irregular; horas de operación irregulares.

Is—Isla(s).

(J)—Indica que los detalles refieren solamente al período "J" que corresponde al verano en el hemisferio del norte y al invierno en los países del sur.

Jamming—Interferencia intencional a una transmisión con el propósito de hacer imposible la recepción de la misma. La gran mayoría del jamming proviene de la Unión Soviética y sus aliados de Europa oriental, y es dirigida contra emisiones en armenio, azerbaijano, belaruso, búlgaro, checo, estonio, georgiano, hebreo, letón, lituano, polaco, ruso, slovaco, tatar-bashkir, turquestano, ucraniano e yiddish. El jamming proveniente de la URSS y Europa oriental consiste mayormente de un ruido no muy diferente de lo de un depósito lleno de camiones los cuales tienen sus motores en plena marcha. De vez en cuando se agrega a este ruido algunos mensajes en clave o programación distorsionada del servicio doméstico soviético, Mayak (DS-2). Una forma de contender con la interferencia jamming es determinar cuales de las bandas podrían ser las más apropiadas para proporcionar buena recepción de la parte del mundo que se quiere escuchar, mientras que al mismo tiempo no darían buena recepción de la Unión Soviética y Europa oriental. Antenas direccionales también pueden mejorar la razón de señal a jamming, bajo ciertas circunstancias.

kHz—Kilohertz (vease 'Frequency').

kW—Kilovatio(s) (vease 'Power').

Loc—Local.

Location—La ubicación física del complejo transmisor/antena. Esta ubicación pudiera no corresponder a la de los estudios donde se preparan los programas. Los datos sobre los nombres geográficos se completan en su mayoría de la Edición Comprensiva (1983) del *Times Atlas of the World*. Como sucede a veces que los complejos de transmisores de las emisoras internacionales

más grandes se encuentran en áreas de escasa población, el sitio exacto del transmisor podría estar a varios kilómetros de la localidad indicada. Esas personas que necesitan coordinados geográficos precisos deben ponerse en contacto con el Departamento de Publicaciones de la UIT.

LV—La Voix, La Voz.

M—Monday (Lunes)

MHz—Megahertz (vease 'Frequency').

Multilingual—Una combinación de cualquier idioma representado por símbolo gráfico (alemán, árabe, chino, español, francés, inglés, japonés, portugués, o ruso) con otro idioma. Así una transmisión en español y quechua sería designada como 'Multilingual', mientras que una emisión en quechua y aymara sería designada como 'Other' (= Otro).

N—New, Nueva, Nuevo, Nouvelle, Novo, Nova, Nacional, National, Nationale.

Nac—Nacional.

Nat—National, Nationale.

Network—La red o el servicio de una emisión. Transmisiones de servicios domésticos son indicadas por "DS".

Non-AM Mode—Transmisión en otro modo que el convencional 'AM' (banda lateral doble con portadora). (Vease 'Feeder, shortwave' para una lista de modos no AM.)

PBS—People's Broadcasting Station (Estación de Radiodifusión del Pueblo)

Power—La potencia de salida de RF (radio-frecuencia), eso es, antes de la amplificación por la antena, en kilovatios (kW). La gama actual de potencias en uso para la radiodifusión de onda corta es 0.04-600 kW.

PR—People's Republic (República Popular)

PS—Provincial Station (Estación Provincial), Pang-song.

Pto—Puerto, Pôrto.

R—Radio, Radiodiffusion, Radiodifusora, Radiodifusión, Radiodifusão, Radioemisora, Radiofonikos, Radiostantsiya, Radyo, Radyosu, etc.

Reg—Regional.

Relay—Instalaciones transmisoras extraterritoriales que retransmiten programas recibidos por satélite, eslabón de onda corta, o en forma de grabación.

Rep—Republic, República, République.

RT, RTV—Radiodiffusion Télévision, Radio Television, etc.

RN—Vease R y N.

S—San, Santa, Santo, São, Saint.

Sa—Saturday (Sábado).

Shortwave Spectrum—La gama de onda corta, o alta frecuencia, es esa porción de la gama radial que se encuentra entre 3 y 30 MHz (3,000-30,000 kHz); sin embargo, de ordinario se ubica la gama de onda corta entre 2 y 30 MHz aproximadamente. Aunque la radiodifusión tiene lugar en toda la gama de onda corta, los recién adoptados—pero no aun plenamente implementados—parametros nominales de la UIT para la radiodifusión de onda corta son (mundialmente, salvo ser indicado de otra manera):

Banda de 120 metros:

2300-2498 kHz (Zonas tropicales solamente)

Banda de 90 metros:

3200-3400 kHz (Zonas tropicales solamente)

Banda de 75 metros:

3900-3950 kHz (Asia & Pacífico solamente)

3950-4000 kHz (excepto las Américas)

Banda de 60 metros:

4750-4995 kHz (Zonas tropicales solamente)

5005-5060 kHz (Zonas tropicales solamente)

Banda de 49 metros:

5950-6200 kHz

Banda de 41 metros:

7100-7300 kHz (excepto las Américas)

Banda de 31 metros:

9500-9900 kHz

Banda de 25 metros:

11650-12050 kHz

Banda de 21 metros:

13600-13800 kHz

Banda de 19 metros:

15100-15600 kHz

Banda de 16 metros:

17550-17900 kHz

Banda de 13 metros:

21450-21850 kHz

Banda de 11 metros:

25600-26100 kHz (25670-26100 kHz desde Julio de 1989)

St—Saint.

Sta—Santa.

Sto—Santo.

Su—Sunday (Domingo)

Target—Las entidades geográficas internacionales a las cuales se dirige una transmisión, con tal que está destinada fuera del país de origen. Las zonas de recepción son las siguientes:

AF—África

AM—Américas

ANZ—Australia & Nueva Zelandia

AS—Asia

ATL—Atlántico

CA—América Central, Caribe & México

CAF—África Central

EAF—África Oriental

EAS—Asia Oriental

EEU—Europa Oriental

ENA—América del Norte (Este)

EU—Europa

EUSSR—URSS Oriental

ME—Oriente Medio

NA—América del Norte

NAF—África del Norte

PAC—Pacífico

SA—América del Sur

SAF—África Meridional

SAS—Sud Asia

SEA—Asia (Sudeste)

USSR—URSS

WAF—África Occidental

WEU—Europa Occidental

WNA—America del Norte (Oeste)

WUSSR—URSS Occidental

Th—Thursday (Jueves).

Tu—Tuesday (Martes).

UTC—Hora Universal Coordinada, también conocida como Hora Meridiano de Greenwich (GMT) o Zulu (Z): la referencia internacional de 24 horas para la radiodifusión, basada en el marco de tiempo del Observatorio de Greenwich en el Reino Unido. La diferencia entre UTC y la hora local puede determinarse escuchando los avisos rutinarios de la hora UTC transmitidos por emisoras internacionales.

v—Frecuencia variable, eso es, una que es inestable.

Vo—Voice of (Voz de).

W—Wednesday (Miércoles).

Wavelength—Longitud de onda. Una alternativa antigua a 'Frecuencia' (vease) para precisar la ubicación de la estación dentro de la gama radial. La longitud de onda de una estación puede determinarse a través de la siguiente fórmula: Longitud de onda (metros) = $299,792 \div \text{Frecuencia (kHz)}$. Esta fórmula puede utilizarse también para precisar la banda (en metros) de una estación determinada (vease 'Shortwave Spectrum').

WS—World Service (Servicio Mundial).

(+) Tent—Tentativo (-a); eso es, la exactitud de algunos detalles (p.ej. el nombre exacto de la estación) está incierta.

GLOSSAR

Channel; Kanal—Die Norm für den Abstand verschiedener Sendungen im Kurzwellenspektrum ist 5.0 kHz. Da aber ein kleiner Teil der Stationen nicht gemäss dieser Norm funktioniert, bietet **Database** Frequenzgenauigkeit von besser als einem kHz für die Lage und Identifizierung von Stationen.

Country; Land—Die Namen für die verschiedenen Länder sind diejenigen der ITU. Inoffizielle Sender und geographische Einheiten werden nur zur Bequemlichkeit erwähnt und bedeuten nicht formale Anerkennung oder Endorsement von IBS oder ITU.

Fade-in, Fade-out; Hineinschwinden, Herausschwinden—Falls die Monitore der Databasis nicht den Anfang oder das Ende einer Sendung genau bestimmen können, dann wird die früheste oder späteste Zeit angegeben, wann die Station gehört werden kann. Dies wird als "fade-in" oder "fade-out" Zeit charakterisiert.

Feeder, shortwave; Kurzwellenspeisesender oder Versorger—Eine Punkt-zu-Punkt bestimmte Sendung zu einer Relaisstation, gewöhnlich durch einzelnes oder unabhängiges Seitenband. Manchmal kommt es vor, dass gewisse Rundfunkprogramme am besten oder nur durch "feeder" gehört werden können, obgleich sie eigentlich nicht für die Öffentlichkeit beabsichtigt sind und auch bessere Empfänger benötigen. Aus diesem Grunde enthält RDI Information über Kurzwellen "feeder", obwohl es möglich ist, dass tatsächlicher Gebrauch nicht immer regelmässig ist.

Sendarten für Kurzwellen "feeder" sind wie folgt:

LSB—Lower Sideband (single-sideband signal); Unteres Seitenband

USB—Upper Sideband (single-sideband signal); Oberes Seitenband

ISL—Lower Sideband (of independent-sideband signal); Unteres Seitenband (von einem unabhängigen Seitenband Signal)

ISU—Upper Sideband (of independent sideband signal); Oberes Seitenband (von einem unabhängigen Seitenband Signal)

RAM—Double Sideband, reduced carrier signal; Doppeltes Seitenband, reduziertes Träger Signal

Anmerkung: Mittelwellen Sendungen, die hauptsächlich dem Inlandsdienst dienen, bestehen aus einem Träger (carrier) und zwei Seitenbändern, die beide dieselbe Information als Spiegelbilder enthalten. Diese Sendart wird AM genannt und wird auch auf Kurzwelle gebraucht. Indem ein Rundfunksender nur ein Seitenband oder sogar auch keinen Träger gebraucht, spart er Energie, oder falls er doch noch mehr kW gebraucht, dann reicht die Sendung weiter stärker und klarer.

Frequency; Frequenz—Das weitverbreitetste Mass, um die Lage einer Sendung innerhalb des

Radiospektrums anzugeben. In Osteuropa und einigen anderen Teilen der Welt wird jedoch noch Wellenlänge gebraucht. Frequenz wird hauptsächlich in Kilohertz (kHz) oder Megahertz (MHz) ausgedrückt. Die Frequenz einer Sendung kann durch die folgende Formel von der Wellenlänge errechnet werden: $\text{Frequenz (kHz)} = 299,792 / \text{Wellenlänge (Meter)}$. Vgl. "Wavelength" (Wellenlänge) und "Channel" (Kanal).

Jamming; Mischmaschen—Die Störung einer Sendung mit der Absicht ihren Empfang unmöglich zu machen. In der Hauptsache kommt "Jamming" heutzutage von der Sowjetunion und ihren osteuropäischen Verbündeten. Es ist gegen Sendungen in den folgenden Sprachen dirigiert: Armenisch, Aserbeidschanisch, Belorussisch, Bulgarisch, Tschechisch, Estonisch, Georgisch, Hebräisch, Lettisch, Litauisch, Polnisch, Russisch, Slowakisch, Tatarisch-Baschkirisch, Turkestanisch, Ukrainisch und Jiddisch. Sowjetisch-osteuropäisches Mischmaschen besteht hauptsächlich aus einem Geräusch wie von vielen, lauten Maschinen. Manchmal kann man Identifikationen in dem Morsealphabet hören oder seltener auch verzerrte Programme des Sowjetischen "Mayak" (DS-2) Inlandsdienstes. Ein Mittel zur Minimierung oder zum Abschwächen des Mischmaschens besteht in der Benutzung des Kurzwellenverbreitung. Man tut dies, indem man herausfindet, welche Bänder wahrscheinlich guten Empfang für den Teil der Welt geben, den man hören will; aber zur selben Zeit wahrscheinlich nicht guten Empfang von der Sowjetunion oder Osteuropa. Durch Antennen, die auf verschiedene Richtungen eingestellt werden können, kann man zuweilen auch die Beziehung zwischen Signal und "Jamming" unter gewissen Umständen verbessern.

Location; Standort—Der Platz, wo sich die Sendeanlagen, einschliesslich des Senders und der Antennen, befinden. Dieser mag nicht derselbe sein wie derjenige der Studios, wo die Rundfunkprogramme hergestellt werden. Data für die Namen von Standorten wurden in der Hauptsache mit Hilfe der Karten in *The Times Atlas of the World*, 1983 Comprehensive Edition, vorbereitet.

Network; Rundfunknetz—Der Dienst oder Service einer Rundfunkorganisation. Ausser solchen offensichtlichen Anwendungen wie 'Weltdienst' kann dieser Ausdruck sich auf Sprachen beziehen, wenn dies nicht durch die graphischen Symbole für Arabisch, Chinesisch, Englisch, Französisch, Deutsch, Japanisch, Portugiesisch, Russisch, und Spanisch angegeben ist. Inlandsdienste sind durch 'DS' (Domestic Service) bezeichnet.

Non-AM Mode—Siehe Feeder.

Power; Kraft—Senderleistung in Kilowatt (kW) vor der Amplifikation durch die Antenne. Zur Zeit gebrauchen Kurzwellensender von 0,04 bis 600 kW,

aber manchmal werden zwei Sender mit nur kleinen Unterschieden in der Richtung gebraucht.

Relay; Relais—Ausserterritoriale Sendestation, gewöhnlich durch Tonbänder, Satelliten oder Kurzwellendienst versorgt (vgl. 'Feeder').

Shortwave Spectrum; Kurzwellenspektrum—

Gemäss der wissenschaftlichen Definition liegt das Kurzwellen—oder Hochfrequenzspektrum zwischen 3 und 30 MHz oder 3,000 und 30,000 kHz. Gewöhnlicher Gebrauch diktiert jedoch, dass es ungefähr zwischen 2 und 30 MHz liegt. In der Praxis kann man Rundfunksendungen fast überall im Kurzwellenspektrum finden. Aber gemäss vor kurzem angenommenen Prinzipien der ITU sind, mit gewissen Begrenzungen, die in den Klammern angegeben sind, die folgenden die nominalen Parameter für Kurzwellen Rundfunkbänder. Es ist jedoch auch in Betracht zu ziehen, dass diese noch nicht ganz offiziell genehmigt sind, wenngleich *de facto* verschiedene Rundfunksender sie schon z.Z. gebrauchen.

120 Meterband:

2300-2498 kHz (nur tropische Zone)

90 Meterband:

3200-3400 kHz (nur tropische Zone)

75 Meterband:

3900-3950 kHz (nur Asien und Pazifik)

3950-4000 kHz (mit Ausnahme Amerikas)

60 Meterband:

4750-4995 kHz (nur tropische Zone)

5000-5060 kHz (nur tropische Zone)

49 Meterband:

5950-6200 kHz

41 Meterband:

7100-7300 kHz (mit Ausnahme Amerikas)

31 Meterband:

9500-9900 kHz

25 Meterband:

11650-12050 kHz

21 Meterband:

13600-13800 kHz

19 Meterband:

15100-15600 kHz

16 Meterband:

17550-17900 kHz

13 Meterband:

21450-21850 kHz

11 Meterband:

25600-26100 kHz

25670-26100 kHz (Anfangend Juli, 1989)

UTC—Coordinated Universal Time; Koordinierte Universalzeit; auch Greenwich Mean Time (GMT) oder Zulu (Z) genannt; die 24-stündige internationale Rundfunkreferenz, die sich auf das Observatorium von Greenwich in Grossbritannien basiert. Man kann den Unterschied zw. UTC und örtlicher Zeit bestimmen, indem man internationalen Rundfunksendungen zuhört. Einige Kurzwellenempfänger und Digitaluhren können auf das vierundzwanzigstündige Format gesetzt werden, sodass man nicht umrechnen braucht.

Wavelength; Wellenlänge—Ein veraltender Ausdruck anstatt Frequenz (vgl. 'Frequency'), um die Lage einer Sendung im Radiospektrum anzugeben. Die Wellenlänge einer Sendung kann durch die folgende Formel errechnet werden: Wellenlänge (Meter) = $299,792/\text{Frequenz (kHz)}$. Diese Formel kann auch gebraucht werden, um das Meterband einer Sendung zu bestimmen (vgl. 'Shortwave Spectrum').

ABKUERZUNGEN

- Alt**—Alternate; abwechselnd, alternativ
AV—A Voz
BC—Broadcasting; Rundfunksendung-sender, oder gesellschaft
BCS, BS—Broadcasting Service; Rundfunkdienst
Cd—Ciudad; City; Stadt
Cl—Club; Clube; Klub
Cu—Cult-Culture; Cultura; Kultur
(D)—Winter
DS—Domestic Service; Inlandsdienst
Ed—Educação, Educadora.
Em—Emissora, Emisora; Emetteur Strahlung
ES—External Service, Auslandsdienst
FR—Federal Republic; Bundesrepublik
F—Friday; Freitag
Hz—hertz—A unit of frequency equal to one cycle per second; Eine Frequenzeinheit, die eine Schwingung pro Sekunde bezeichnet
irr—Irregular operation or hours of operation; unregelmässige Sendung
Is—Island(s); Insel(n)
(J)—Sommer
kHz—Kilohertz 1,000 Hertz (cf. Frequency); vgl. Frequenz
kW—Kilowatt(s) (cf. Power); Stärke, Senderleistung (vgl. "Power")
LV—La Voix, La Voz; die Stimme
M—Monday; Montag
MHz—Megahertz 1,000 kHz (cf. Frequency); vgl. Frequenz
N—New; Nueva; Nuevo; Nouvelle; Novo, Nova, Nacional, Nationale; Neu
Nac—Nacional; National
Nat—National, Nationale
PBS—People's Broadcasting Station Volksrundfunkstation
PR—People's Republic; Volksrepublik
Pto—Puerto Pôrto; Hafen
R—Radio, Radiodiffusion, Radiodifusora, Radiodifusión, Radioemisora, Radiofonikos, Radiostantsiya, Radyo, Radyosu, etc.
Rep—Republic; República; République; Republik
RT, RTV—Radiodiffusion Télévision, Radio Television, etc.
S—San, Santa, Santo, São, Saint; in Heiligennamen verschiedener Sprachen und auf solche zurückgehenden Ortsnamen
Sa—Saturday; Sonnabend, Samstag
St—Saint; vgl. S
Sta—Santa, vgl. S
Sto—Santo, vgl. S
Su—Sunday; Sonntag
Target—Zielgebiet, spez. die internationalen geographischen Gebiete für die eine Sendung beabsichtigt ist, falls sie ausserhalb des Landes gehört werden soll:
 AF—Africa; Afrika
 AM—Americas; die amerikanischen Kontinente
 ANZ—Australia & New Zealand; Australien u. Neuseeland
 AS—Asia; Asien
 ATL—Atlantic; Atlantik
 CA—Central America, Carribean & Mexico; Mittelamerika, Karibik u. Mexiko
 CAF—Central Africa; Zentralafrika
 EAF—Eastern Africa; Ostafrika
 EAS—Eastern Asia; Ostasien
 EEU—Eastern Europe; Osteuropa
 ENA—Eastern North America; Ostnordamerika
 EU—Europe; Europa
 EUSSR—Eastern USSR; UdSSR (Ost)
 ME—Middle East; Nahost
 NA—North America; Nordamerika
 NAF—Northern Africa; Nordafrika
 PAC—Pacific; Pazifik
 SA—South America; Südamerika
 SAF—Southern Africa; Südliches Afrika
 SAS—Southern Asia; Sadasien
 SEA—South East Asia; Sudostasien
 USSR—USSR; UdSSR
 WAF—Western Africa; Westafrika
 WEU—Western Europe; Westeuropa
 WNA—Western North America; Westnordamerika
 WUSSR—Western USSR; UdSSR (West)
Th—Thursday; Donnerstag.
Tu—Tuesday; Dienstag.
v—Variable frequency; variierende Frequenz, d.h. eine, die nicht stabil ist oder sich verändert.
Vo—Voice of . . . Die Stimme von . . .
WS—World Service; Weltdienst

Alt - Alternate. 代替の (周波数など)。

定期放送の周波数の代りに突然、又は不定期に使われる周波数。

AV - A Voz. ……の。(ブラジルあるいはポルトガル語系の放送局名に使われる)

BC - Broadcasting, Broadcasting Company, Broadcasting Corporation 放送又は放送会社。

BS - Broadcasting Service. 放送サービス。

Cd - Ciudad. 市, あるいは町。

Channel - 短波放送バンド内のチャンネル間隔の標準は 5kHz です。幾つかの局がこの標準によらずに運用しているので、本データベースでは、1kHz かそれ以上良好な読み取り精度で周波数を確認し、放送局名あるいは局所在地の確認を容易にしています。

Cl - Club, Clube. クラブ。(放送局名にも使われている)

Country - 国名の呼び方は I T U 方式に従っています。非公式な放送局 (地下局など) や地名も参考情報として含めてありますが、これは I B S や I T U がこれらの局や地名を認知したことを意味するものではありません。

Cu, Cult - Cultura, Culture. 文化。(教育局などの放送局名に使われる)

(D) 冬スケジュールのみ

DS - Domestic Service. 国内サービス, 国内向け放送。

Ed, Educ - Educational, Educa ção, Educadora. 教育 (局)

Em - Emissora, Emisora, Emissor. 放送 (局)

EP - Emissor Provincial 州向け放送。

ER - Emissor Regional. 地域放送。

ES - External Service. 外国向け放送。

F - Friday. 金曜日。

Fade-in, Fade-out - データベース・モニタ・チームが、局の開始 (又は終了) 時間を確認できない場合、確認できる最も早い (又は遅い) 時間を「フェード・イン」 (又は「フェード・アウト」) 時間として用いています。

Feeder, shortwave - 番組作成国から中継局向けに通常は単一側波帯又は独立側波帯で、固定局送信による番組中継が行われており、これをフィーダと呼んでいます。これは一般聴取者向けではありませんが、通信形受信機を用いて良好に受信できることが多く、ある局を受信しようとした場合、時間によってはフィーダの方が良く聞こえたり、フィーダのみしか聞こえないということもあります。このため、本データベースでは、定期放送より送信時間は少いにしても、その有効性を考慮してフィーダの情報も含めてあります。

短波フィーダの送信モードは次の 5 つに分かれています。

LSB - 下側単一側波帯信号

ISL - 下側独立側波帯信号

UBS - 上側単一側波帯信号

ISU - 上側独立側波帯信号

RAM - 両側独立搬送波信号

FR - Federal Republic. 連邦共和国。

Frequency - 無線スペクトラムの中の局の位置を測定するため最も広く使われている単位です。日本語では「周波数」。周波数は一般にはキロヘルツ (kHz), 又はメガヘルツ (MHz) で表わされます。東欧諸国等では未だ「波長」で局の存在を示すところがあります。周波数と波長の換算は、

周波数 (kHz) = 299, 792 / 波長 (メータ) で計算できます。

Wave Length と **Channel** の項も参照。

Irr - Irregular operation or hours of operation. 不定期放送。

Is - Island (s). 島。

(J) 夏スケジュールのみ

Jamming - ジャミングとは、放送を受信できないように送信される妨害信号のことです。現在行なわれているジャミングの大多数は、ソ連および東欧諸国から発せられており、妨害されている言語は、アルメニア語、アゼルバイジャン語、バイエルロシア語、ブルガリア語、チェコ語、エストニア語、ギオルジニア語、ヘブライ語、ラトビア語、リトアニア語、ポーランド語、ロシア語、スロバク語、タタール・バシキール語、トルキスタン語、ウクライナ語、そしてイディッシュ語です。ソ連／東欧諸国のジャミングは、大形トラックがエンジンでウーウー言わせて走り去っていくような音を発しており、稊り音の中にコード符号が時々入ることがあり、又、ソ連の国内向け放送「MAYAK」のプログラムが極端に歪んだ音で混入される場合もあります。

ジャミングの影響を最も少く受信するためには、電波伝ばん予報などのデータを用い、聞こうとしている局に最適の周波数でかつソ連／東欧方向から伝ばんにくい周波数を選ぶことです。場合によっては、指向性アンテナで信号・ジャミング比を向上することが出来ます。

KHz - Kilohertz. キロヘルツ

KW - Kilowatt. キロワット

Loc - Local. 地方向け。

Location - 送信所の地図上の場所を指しています。この場所は、番組の制作されるスタジオとは必ずしも一致していません。地名については、The Time Atlas of the World の 1983 年 Comprehensive Edition 地図編からとっています。主要国際放送局の送信所は、特に人家の無いような場所に設置されていますので、実際の送信施設の場所は、地名で表示された所から場所により数 km も離れているかも知れません。送信所の正確な座標位置 (緯度、経度) をお知らせになりたい方は I T U の出版部 (Publication / Department) にお問い合わせ下さい。

LV - La Voix, La Voz. ……の声。(中南米の放送局名に使われる。)

M - Monday. 月曜日。

MHz - Megahertz. メガヘルツ。

Multilingual - グラフィック表示の言語 (アラビア語、英、仏、独、日、露、ポルトガル、スペインの各言語) と他の言語の組み合わせ。例えば英語とウルド語の送信では英語でなく「Multilingual」と表示しています。尚

グラフィック表示でないタミル語とウルド語の送信では、「Other」で表示しています。

N—New, Nueva, Nuevo, Nouvelle, (新)。

Nacional, National (国、有、国立)

Nac —Nacional. 国、有、国立。

Nat, Natl —National. 国、有、国立。

Network —ネットワークは放送網、或いは放送サービスを意味しています。尚、国内向け放送は「DS」で表示されています。

Non-AM Mode—従来の両側帯方式 (AM) 以外の送信を指しています。(Feeder, shortwaveの項参照)

PBS —People's Broadcasting Service. 人民放送サービス。

Power —高周波出力、即ちアンテナ入力部の電力のことでキロワット (kW) で表示されます。現在、短波放送で使われている電力は、0.04—500kWの範囲です。

PR —People's Republic. 人民共和国。

PS —Provincial Station, Pangsang. 地方局。

Pto —Puerto. (ポート) 港の意。地名に多い。例 Puerto Rico.

R—Radio, Radiodiffusion, Radiodiffusora, Radiodiffusao, Radiodifusao, Radiostantsiya, Radyo, Radyosu, etc. ラジオ、放送(局)。

Reg. —Regional. 地域向け。

Relay —中継所。自国外の送信設備を指すことが多く、録音番組、衛星中継又は短波フィーダによる番組を送出しています。

Rep —Republic, Republique, Republica. 共和国。

RT, RTV —Radiodiffusion Television, Radio Television, etc. ラジオ、テレビ放送局

RN —Cf. R and N. RとNの項参照。Radio

Nacional (国営放送局) などと使います。

RS —Radio Station, Radiostantsiya, Radiofonikos Stathmos, ラジオ放送局。

S—San, Santa, Santo, Sao, Saint, 聖……と使う。地名ではそのまま

Sa —Saturday. 土曜日。

Shortwave Spectrum—日本語でいう短波は、英語でShortwaveあるいはHigh-Frequencyと表現され、その無線スペクトルは、3—30MHz (3000—30,000kHz) と規定されています。しかし一般には2—30MHzの波を短波と通称することが多いようです。短波スペクトラムのいろいろな部分で短波放送は行われていますが、最近採用された(未だ完全実施には至っていないが)ITU短波放送帯の標準は、次の通りです。

120Mバンド2300—2498kHz

(トロピカル・ゾーンのみ)

90Mバンド3200—3400kHz

(トロピカル・ゾーンのみ)

75Mバンド3900—3950kHz

(アジア太平洋地域のみ)

3950—4000kHz (大陸を除く)

60Mバンド4750—4995kHz

(トロピカル・ゾーンのみ)

5005—5060kHz

(トロピカル・ゾーンのみ)

49Mバンド5950—6200kHz

41Mバンド7100—7300kHz (米大陸を除く)

31Mバンド9500—9900kHz

25Mバンド11650—12050kHz

21Mバンド13600—13800kHz

19Mバンド15100—15600kHz

16Mバンド17550—17900kHz

13Mバンド21450—21850kHz

11Mバンド25600—26100kHz

25670—26100kHz (86年7月から)

St —Saint. セイント。聖……の意。Sの項参照。

Sta —Santa. サンタ。聖……の意。Sの項参照。

Sto —Santo. サント。聖……の意。Sの項参照。

Su —Sunday 日曜日。

Target —放送が外国で聞かれることを意図している場合の放送対象地域／対象国のことをターゲットと言います。ターゲットは下記の略称で表わされています。

AF —Africa アフリカ向け。

AM —Americas アメリカ大陸向け。

ANZ —Australia & New Zealand オーストラリア向け。

AS —Asia アジア向け。

ATL —Atlantic 大西洋地域向け。

CA —Central America, Caribbean & Mexico 中央アメリカ、カリブ、メキシコ向け。

CAF —Central Africa 中央アフリカ向け。

EAF —Eastern Africa 東アフリカ向け。

EAS —Eastern Asia 東アジア向け。

EEU —Eastern Europe 東ヨーロッパ向け。

ENA —Eastern North America 北米東部向け。

EU —Europe ヨーロッパ向け。

EUSSR —Eastern USSR ソ連東部向け。

ME —Middle East 中東向け。

NA —North America 北米向け。

NAF —Northern Africa 北アフリカ向け。

PAC —Pacific 太平洋地域向け。

SA —South America 南米向け。

SAF —Southern Africa 南アフリカ向け。

SAS —Southern Asia 南アジア。

SEA —South-East Asia 東南アジア向け。

USSR —USSR ソ連向け。

WAF —Western Africa 西アフリカ向け。

WEU —Western Europe 西ヨーロッパ向け。

WNA —Western North America 北米西部向け。

WUSSR —Western USSR ソ連西部向け。

(+) **Tent** —Tentative. 暫定。記載されている内容の

一部、例えば正式局名などが不確かなもの。

Th - Thursday. 木曜日。

Tu - Tuesday. 火曜日。

UTC - 協定世界時と訳されており、グリニッジ標準時 (GMT) やズル時 (Z) と同意語です。英国のグリニッジ天文台の時間標準をもとにした24時間方式の時間表示です。UTCと自分の地方標準時の差は、国際放送局が定期的にアナウンスするUTC時間を聞くことにより計算できます。最近の短波受信機の中には、24時間のUTCを表示するものも出て来ています。

V - Variable frequency. 即ち不安定な標同する周波数です。

Vo - Voice of. の声。(放送局名に使われる。)

W - Wednesday. 水曜日。

Wavelength - 波長。無線スペクトラムの中の局の位置を測定するための、旧式な単位、表現方法です。放送局の波長は

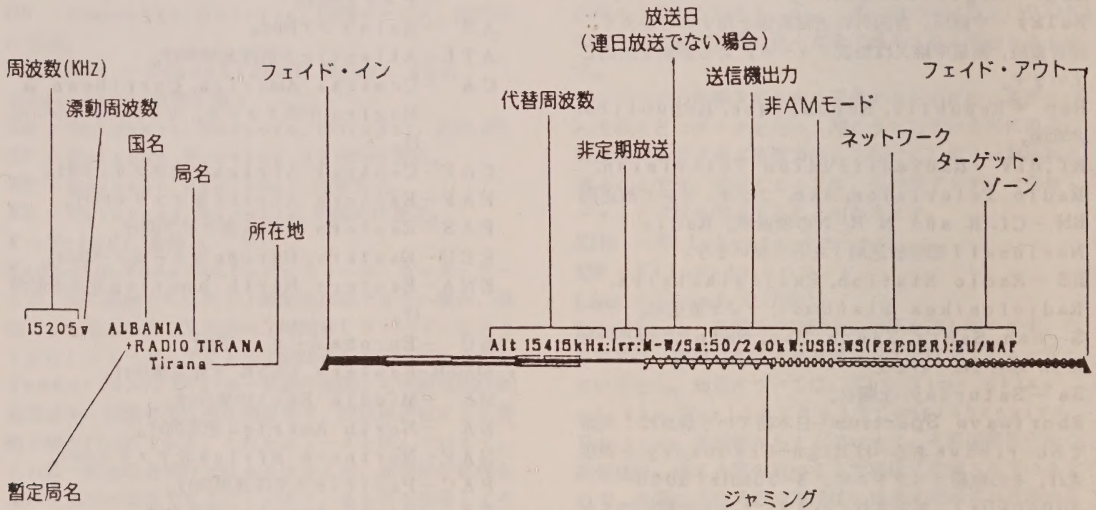
波長 (M) = 299,792 / 周波数 (kHz) で計算できます。この式は、或る局が何メータ・バンドに出ているかを確かめるときにも使えます。(Short Wave Spectrumの項参照)

WS - World Service. ワールド・サービス。
(全世界カバーの放送)

World Time - UTCの項参照

夏時間を使用している国では、スケジュール上夏と冬で1時間の差のある場合があります。

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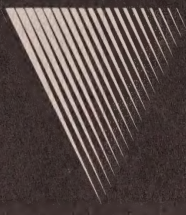
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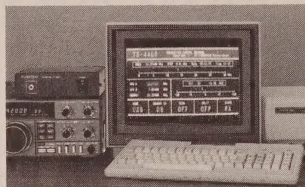
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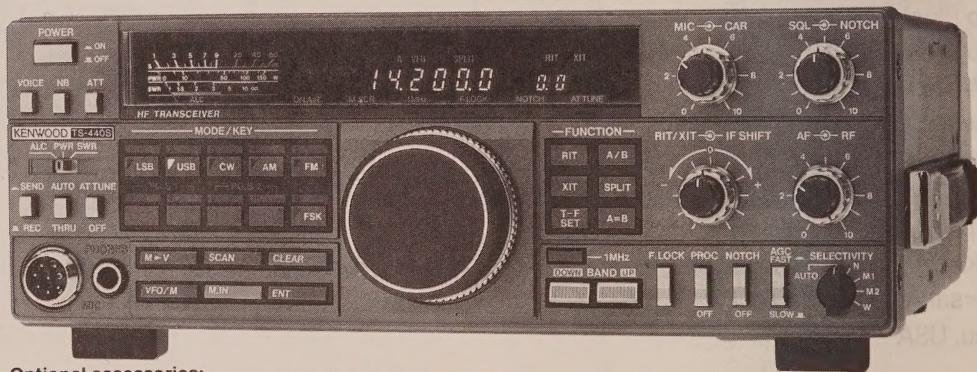
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Optional accessories:

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headphones • SP-40/50 mobile speakers • MA-5/VP-1 HF 5 band mobile helical antenna and bumper mount • TL-922A 2 kw PEP linear amplifier • SM-220 station monitor

- VS-1 voice synthesizer
- SW-100A/200A/2000 SWR/power meters
- TU-8 CTCSS tone unit
- PG-2C extra DC cable.



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- Noise blanker built-in.
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- AGC switch. (Slow-Fast.)
- High and low impedance antenna terminals.
- 100/120/220/240 VAC operation.

- "S" meter, with SINPO scale.
- RECORD output jack.
- Timer REMOTE output (not for AC power).
- Muting terminals.

Optional accessories:

- VC-10 VHF converter for R-2000 covers 118-174 MHz
- YG-455C 500 Hz CW filter for R-2000
- HS-4 Headphones
- HS-5 Deluxe headphones
- HS-6 Lightweight headphones
- HS-7 Micro headphones
- DCK-1 DC cable kit for 13.8 VDC operation

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